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APPENDIX No. 22.

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MEMORANDA.

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CANADA

FROM THE

ATLANTIC TO THE PACIFIC AND ARCTIC OCEANS,

ARCTIC VOYAGES

VOYAGES OF DISCOVERY IN THE NORTH,

AND

PUBLIC WORKS,

ETC., ETC.

BY

G. F. BAILLAIRGÉ,

DEPUTY MINISTER OF PUBLIC WORKS.

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# TABLE OF CONTENTS.

History

	PAGE.
Letter of His Honour John Schultz, Lieutenant Governor of Manitoba respecting Historical Map of Canada, to be published .....	3
Part I.—Area and population of Canada and of the World, etc., 1605 to 1890 .....	5 to 24
Part II.—Navigable Waters, Canals, Railways, Telegraph Lines, Routes to Liverpool and Yokohama.....	25 to 61
Part III.—Progressive Discoveries and Foundations of various Cities, Trading Stations, etc., in North America, colonized by France and Great Britain.....	64 to 80
Part IV.—Latitudes, Longitudes and Climate, etc., as observed during various Arctic Expeditions and otherwise, and also the International Circumpolar Stations.....	81 to 104
Part V.—Natural Resources, Products and Trade, etc.....	105 to 112
Part VI.—Agricultural Statistics, 1605 to 1888, inclusive.....	113 to 132
Part VII.—Mackenzie Basin, Principal Forts, Hudson's Bay and North-West Territory, also the Yukon Territory.....	133 to 180
Part VIII.—Boundaries between Canada and the United States and of the Provinces of Nova Scotia, Prince Edward Island, New Brunswick and Quebec, of the Labrador Coast under the Government of Newfoundland, of the Provinces of Ontario, Manitoba and British Columbia, and also of the Provisional Districts of Keewatin, Assiniboia, Saskatchewan, Alberta and Athabasca.....	181 to 194
Part IX.—Scoresby's Chronological Enumeration of Voyages of Discovery, continued from 1820 to the time of the last Expedition under Lieut. A. W. Greely and his Rescuers...	195 to 206

## ADDENDA.

Part II.—Number of Nautical and Statutes Miles corresponding to a degree of Longitude at the various degrees of Latitude, and the definition thereof.....	210
“ Rise of Neap and Spring Tides at various places in Canada.	211 to 218
“ Opening and closing of Navigation, etc., at various Ports in Canada .....	220 to 231
“ Ports, etc., open to Navigation in Canada the whole year...	234
“ Ocean Routes and Inter-oceanic Canals.....	244 to 248
“ Railways to Hudson's Bay .....	249
“ Expenditure on Public Works, Canada. ....	252 to 253
“ Heads, etc., Department of Public Works, 1841 to 1891....	256 to 257
Part VII.—Forts, etc., of Northern Territories comprised in various Dioceses.....	236 to 239
Part VIII.—Imperial Statutes relating to Labrador.....	242

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3

5 to 24

25 to 61

64 to 80

81 to 104

105 to 112

113 to 132

133 to 180

181 to 194

195 to 206

210

211 to 218

220 to 231

234

244 to 248

249

252 to 253

256 to 257

236 to 239

242

## LETTER

OF

His Honour John Schultz, Lieutenant-Governor of Manitoba,

RESPECTING

## HISTORICAL MAP OF CANADA.

(TO BE PUBLISHED.)

GOVERNMENT HOUSE, 12th July, 1889.

DE R MR. BAILLAIRGÉ,—The only apology I can offer you for the long delay in answering your letter of the 15th May is, that I found it very difficult, after an absence of a month in British Columbia, to overtake even State correspondence, and later I found that I had mislaid your very kind letter.

Allow me to thank you, thus late, for the map you sent, which displayed on itself, not only very great photographic care, but in the additions made by hand, a more intimate knowledge of the more northern portion of our great North-West than I had supposed possible for one who had not travelled through it. To my mind you have collected, collated and recorded, information of the greatest possible future use for Canada, and I feel that the Government could not possibly spend the public money on an object more likely to be of national use, and I hope to see, before long, your map in the hands of all the members of our Legislature, and in every school in the country. Nothing, in my opinion, would do more to convey to Canadians an idea of the vastness and richness of their great heritage than the wide distribution of your map. You ask me to point out any omissions in the copy which I have received, but I can scarcely do so here, as none of the public or parliamentary libraries contain the authorities which I would have to consult; but, in the event of your map being published, I would go to Ottawa and aid you in any possible manner. I may mention incidentally however, now, that you have, I think, the eastern boundary of the district of Keewatin too far west. However, I have no doubt, that before publication, you will have this defined from an authoritative source. Recent decisions conflict as you are aware, with the former boundaries, and an Act of the Dominion Parliament will have to settle it. Still I have no doubt but that the Surveyor-General, or the Department of Justice, or both, will be able to give you a hint.

Again thanking you, dear Mr. Baillairgé, for your very valuable map which now hangs in my library.

Believe me with best wishes,

Very faithfully yours,

[Signed] JOHN SCHULTZ.

G. F. BAILLAIRGÉ, Esq.,

*Deputy Minister of Public Works, Ottawa.*

The map has since been submitted to the Surveyor-General and corrected according to the most recent data, with which he was kind enough to furnish me.

G. F. BAILLAIRGÉ.



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PART I.

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DOMINION OF CANADA, ETC.

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AREA AND POPULATION,

1605 to 1890.

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## AREA AND POPULATION.

Dominion of Canada and Newfoundland, &amp;c., 1890.

PROVINCES, DISTRICTS, TERRITORIES.	Entered Confederation or Organized.	SQUARE MILES.			Popu- lation, Census 1881.	Persons to the Square Mile.
		Land.	Water.	Total.		
Manitoba, Province.....	Entered Confedera- tion 15th July, 1870	65,000	9,000	74,000	65,954	1·00
Saskatchewan, District.....	Organized 8th May, 1882	101,400	7,000	108,400		
Assiniboia do .....	do	89,650	550	90,200		
North-West Territories.....		859,600	46,500	906,000		
Athabasca, District.....	Organized 8th May, 1882	103,300	1,200	104,500	56,446	0·04
Alberta do .....	do	105,850	250	106,100		
British Columbia, Province....	Entered Confedera- tion 20th July, 1871	382,300	1,000	383,300	49,459	0·13
Ontario do ....	Entered Confedera- tion 1st July, 1867	219,650	2,350	222,000	1,923,228	9·00
New Brunswick do ....	do	28,100	100	28,200	321,233	11·43
Nova Scotia do ....	do	20,550	50	20,600	440,572	21·44
Prince Edward Island do ....	Entered Confedera- tion 1st July, 1873	2,000		2,000	108,891	54·44
Quebec do ....	Entered Confedera- tion 1st July, 1867	227,500	1,400	228,900	1,359,027	6·00
Territory east of Hudson's Bay		352,300	5,700	358,000	Unknown.	
Islands in Arctic Ocean and Hudson's Bay.....		300,000		300,000	do	
Keewatin, District.....	Organized 1876.....	267,000	15,000	282,000	do	
Territory east of Keewatin and south of Hudson's Bay.....		194,300	2,500	196,800	do	
Great Lakes and River St. Law- rence east to Long. 66°, and portions within United States, not included in above areas..			47,400	47,400		
Totals.....		3,318,500	139,900	3,458,400	4,324,810	1·33
Labrador—East Coast on the Atlantic from Blanc Sablon to Cape Chud- leigh, under Government of Newfoundland, say.....				40,000	4,000	
Newfoundland .....				42,734	187,411	
do French Shore, from Cape Ray to Cape St. John, say.....					10,000	
Increase since Census 1881—Estimated at 1·5 per 100.....					4,526,221 678,933	
Total, 1890—Estimated.....				3,541,134	5,205,154	

NOTE.—Capt. E. Deville states that the area of the Province of Quebec in the foregoing table of areas furnished by him, does not extend beyond the height of land; and also that the areas of the great lakes Ontario, Erie, Huron and Superior, do not comprise the portion within the United States boundary. For further details respecting lakes and rivers, see pages 26 to 32.

OTTAWA, 13th June, 1890.

G. F. B.

# AREA and Population of the United Kingdom and United States of America.

Countries.	Area in Square Miles.	Population, Census of 1881.	Persons to the Square Mile.
Great Britain and Ireland, comprised below in Europe. . .	121,115	36,100,000	298
United States of North America. . . . .	3,603,884	50,445,336	14

## AREA and Population of British Possessions in the World in 1881.

British Possessions in Europe. . . . .	121,235	36,275,774	300·00
do Africa. . . . .	352,025	2,570,535	7·00
do Asia. . . . .	1,584,525	207,309,731	1·62
do America. . . . .	3,620,210	6,395,198	1·77
do Australasia. . . . .	3,079,034	2,741,634	0·89
Total British Possessions. . . . .	8,757,029	305,292,872	35·00

## AREA and Population of the World in 1890.

Continent of Europe. . . . .	3,800,000	347,000,000	91
do Africa. . . . .	11,800,000	197,000,000	17
do Asia. . . . .	17,600,000	789,000,000	45
do America. . . . .	16,500,000	112,000,000	7
do Oceanica. . . . .	3,500,000	38,000,000	10
Area of the Earth about. . . . .	53,600,000	1,483,000,000	28

NOTE.—The population of Great Britain and Ireland is now estimated at more than 38,000,000 and that of the United States at more than 60,000,000.

Population,  
Census  
1881.

Persons  
to the  
Square  
Mile.

65,954 1·00

56,446 0·04

49,459 0·13

923,228 9·00

321,233 11·43

440,572 21·44

108,891 54·44

359,027 6·00

known. . . . .

do . . . . .

do . . . . .

do . . . . .

324,810 1·33

4,000 . . . . .

187,411 . . . . .

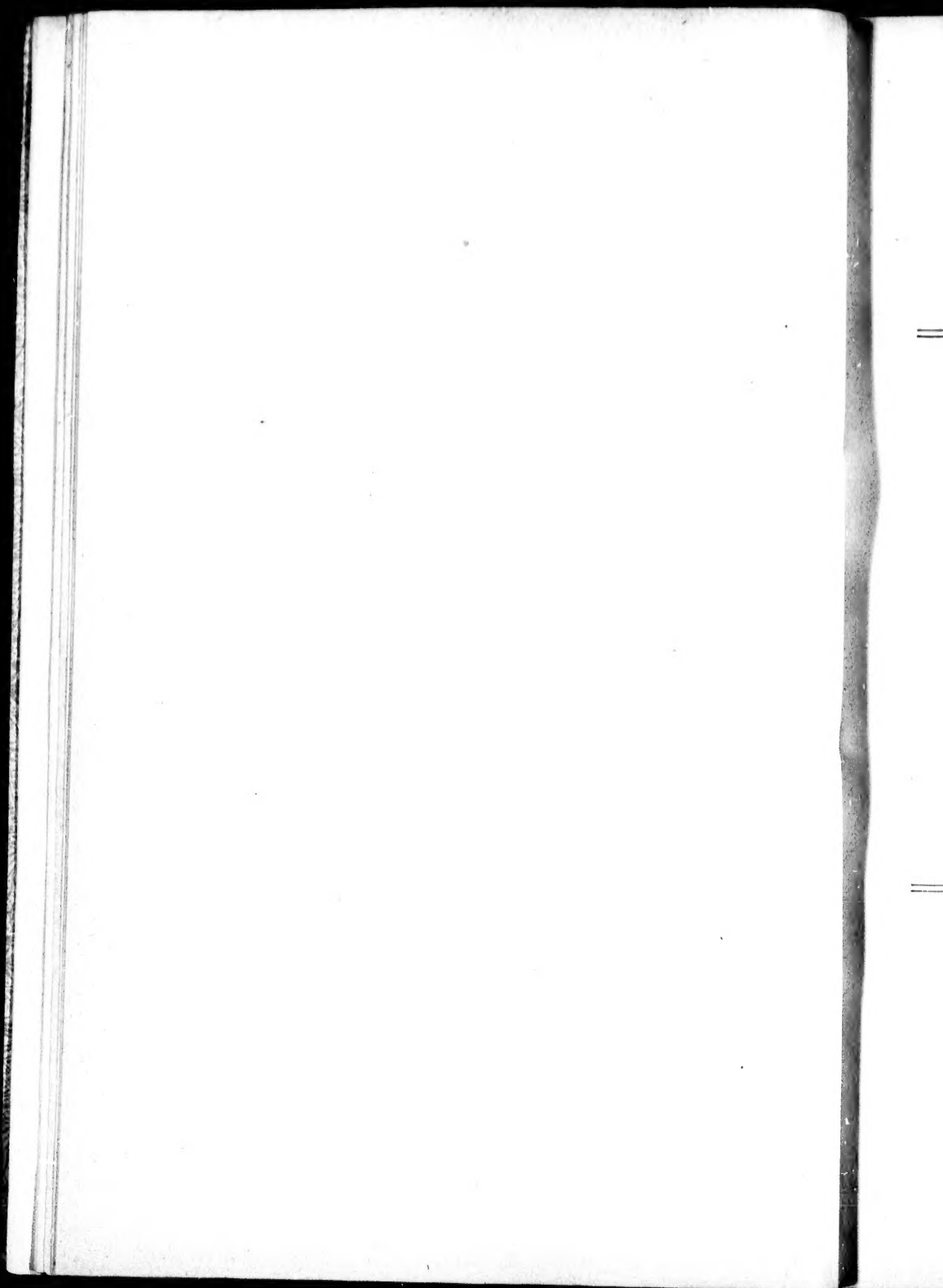
10,000 . . . . .

526,221 . . . . .

378,933 . . . . .

205,154 . . . . .

ing table of areas  
of the great lakes  
boundary.



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PROGRESSIVE POPULATION.

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ACADIAN POPULATION.

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ABORIGINAL POPULATION.

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1605 to 1890.

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CHRONOLOGICAL Record of the Population of New France, Acadia, etc. (now the Dominion of Canada) progressively, from 1605 to 1881.

Date.	Localities.	Popula- tion.	Date.	Localities.	Popula- tion.
1605	Port Royal.....	44	1749	Acadia, N.B., French pop. of.....	1,000
1608	Quebec.....	28	1749	St. John Island, P.E.I., French pop. of.....	1,000
1620	do.....	60	1752	Acadia, N.S., English and German.	4,203
1628	New France.....	76	1752	Acadia Peninsula, French.....	9,300
1629	Quebec (90 English).....	117	1752	Ile-Royale, French.....	4,325
1641	New France.....	240	1752	Acadia, N.B.....	1,550
1653	do.....	2,000	1752	St. John Island, P.E.I.....	2,000
1663	do.....	2,500	1754	New France.....	55,009
1665	do (de Jure).....	3,215	1754	Nova Scotia, Br. pop.....	5,000
1667	do.....	3,918	1760	New France.....	70,000
1668	do.....	6,282	1762	Nova Scotia, Br. pop.....	8,104
1671	Acadia.....	441	1763	do do.....	9,000
1673	New France.....	6,705	1764	do do (including por- tion of the Acadians).....	12,998
1675	do.....	7,832	1765	New France.....	69,810
1676	do.....	8,415	1767	Nova Scotia (a few Acadians in- cluded).....	11,779
1679	do.....	9,400	1772	Nova Scotia, Br. pop.....	17,000
1679	Acadia.....	515	1775	Canada (all).....	90,000
1680	New France.....	9,719	1781	Nova Scotia, Br. pop.....	12,000
1681	do.....	9,677	1784	Canada (whole of).....	113,012
1683	do.....	10,251	1784	Loyalists not included.....	10,000
1685	do (1,538 Indians included).....	12,263	1784	Nova Scotia, Br. pop.....	32,000
1686	Acadia.....	885	1784	Loyalists included.....	20,000
1688	New France.....	11,562	1790	Canada, whole of, Quebec, Three Rivers and Montreal Districts.....	161,311
1692	do.....	12,431	1790	Nova Scotia, Peninsula only.....	30,000
1693	Acadia.....	1,009	1793	Cape Breton (separated from N. S., 1784).....	2,000
1695	New France.....	13,639	1797	St. John Island, P.E.I. (separated from N.S., 1770).....	4,500
1695	St. John River, N.B.....	49	1806	New Brunswick (separated from N. S., 1784).....	35,000
1698	New France.....	15,355	1806	Prince Edward Island (so-called in 1798-1800).....	9,676
1698	Acadia, portion of.....	789	1806	Canada, Upper (estimated).....	70,718
1701	Acadia, North of Peninsula of.....	1,134	1806	do Lower.....	250,000
1703	do.....	1,244	1807	Nova Scotia.....	65,000
1706	New France.....	16,417	1811	Canada, Upper.....	77,000
1707	do.....	17,204	1814	do Lower.....	335,000
1707	North Peninsula of Acadia.....	1,484	1814	do Upper.....	95,000
1712	New France.....	18,440	1817	Nova Scotia.....	81,351
1712	do.....	18,119	1822	Canada, Lower.....	427,465
1714	North Peninsula of Acadia.....	1,773	1822	Prince Edward Island (estimated).....	24,600
1716	New France.....	20,531	1824	Canada, Upper.....	150,066
1716	do.....	22,983	1824	New Brunswick.....	74,176
1717	do.....	22,530	1825	Canada, Upper.....	157,923
1720	do.....	24,434	1825	do Lower.....	479,288
1720	St. John Island, P.E.I.....	100	1826	do Upper.....	166,379
1721	New France.....	24,951	1827	do do.....	177,174
1722	do.....	25,053	1827	Nova Scotia (Cape Breton being united in 1820).....	123,630
1723	do.....	26,479	1827	Canada, Lower.....	473,475
1724	do.....	26,710	1828	do Upper.....	186,488
1726	do.....	29,306	1829	do do.....	197,815
1727	do.....	30,613	1830	do do.....	213,156
1728	St. John Island, P.E.I.....	330	1831	do do.....	236,702
1730	New France.....	32,682	1831	Assiniboia (now Manitoba).....	2,390
1731	Acadia, North of Peninsula of.....	6,005	1831	Canada, Lower.....	553,134
1732	New France.....	35,614	1832	do Upper.....	263,554
1733	St. John River, N.B.....	111	1833	do do.....	295,863
1734	New France.....	37,716	1833	Prince Edward Island.....	32,292
1735	St. John Island.....	541	1834	Canada, Upper.....	321,145
1736	New France.....	39,063	1834	New Brunswick.....	119,457
1737	do.....	39,970			
1737	North of Peninsula of Acadia, French population.....	7,598			
1739	New France.....	42,701			
1739	Ekoupay, River St. John.....	116			
1749	Nova Scotia, Br. Img., &c.....	2,544			
1749	Acadian Peninsula, French pop. of.....	13,000			
1749	Ile-Royale, C.B., French pop. of.....	1,000			

CHRONOLOGICAL Record of the Population of New France, Acadia, etc.—*Con.*

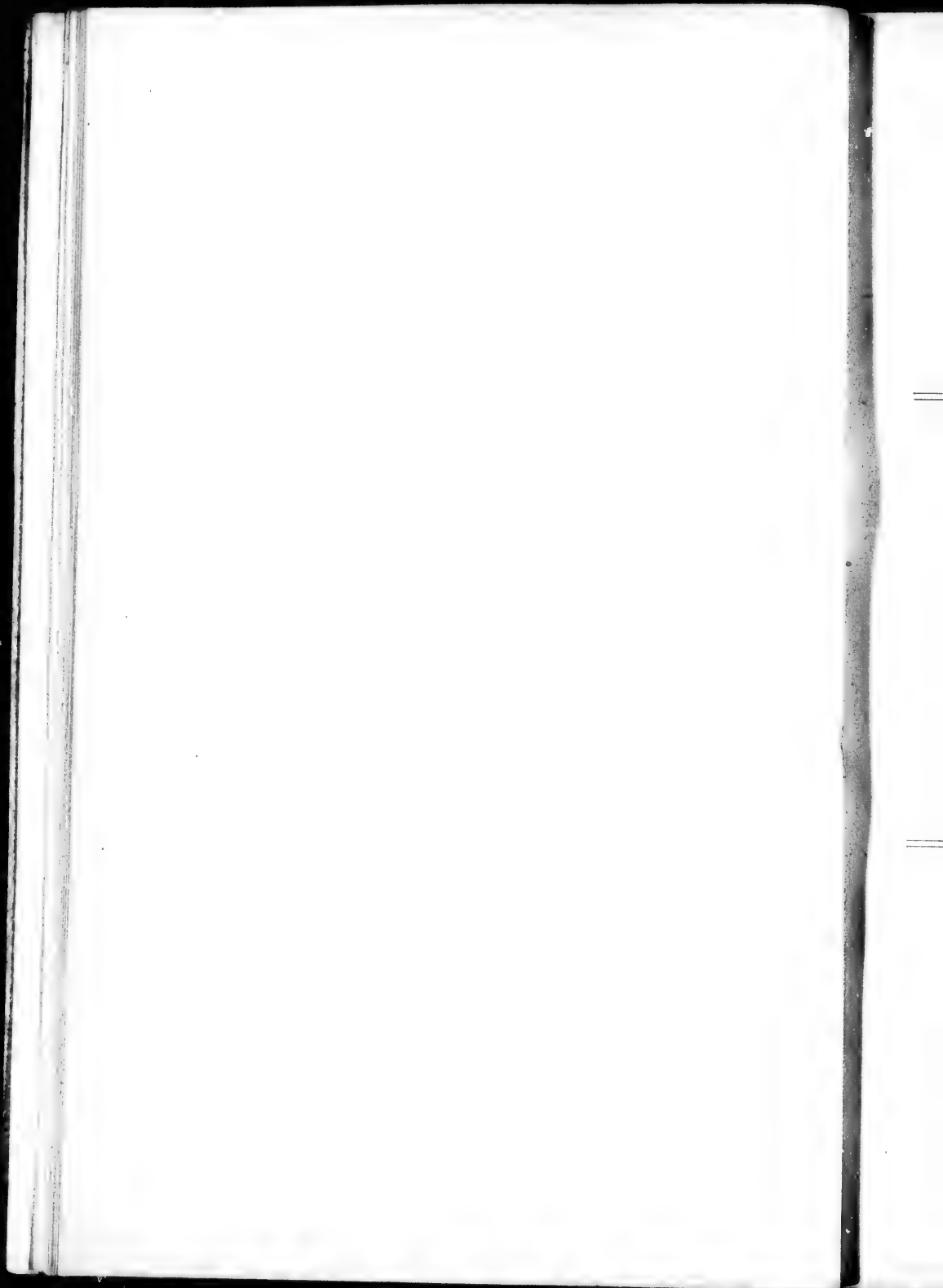
Date.	Localities.	Popula- tion.	Date.	Localities.	Popula- tion.
1834	Assiniboia, Man. ....	3,356	1860	Canada, Upper .....	1,396,091
1835	do .....	3,649	1861	do Lower .....	1,111,566
1835	Canada, Upper .....	347,359	1860	New Brunswick .....	252,047
1836	do do .....	374,099	1861	Nova Scotia .....	330,857
1837	do do .....	397,489	1860	Prince Edward Island .....	80,857
1837	Nova Scotia .....	196,906	1861	Vancouver and Victoria, B.C.,	
1838	Canada, Upper .....	399,422	1860	Immigrants .....	3,024
1838	Assiniboia .....	3,966	1861	British Columbia, Immigrants and	
1838	Nova Scotia .....	202,575	1860	descendants .....	10,586
1839	Canada, Upper .....	409,048	1861	Manitoba—Indians not included ..	12,228
1840	do do .....	432,159	1860	1871 Ontario .....	1,620,851
1840	New Brunswick .....	156,162	1861	1871 Quebec .....	1,191,516
1840	Assiniboia .....	4,704	1870	1871 New Brunswick .....	285,594
1841	Canada, Upper .....	455,688	1871	1871 Nova Scotia .....	387,800
1841	Prince Edward Island .....	47,042	1871	1871 Prince Edward Island .....	94,021
1842	Canada, Upper .....	487,053	1881	Ontario .....	1,923,222
1843	Assiniboia, Man. ....	5,143	"	Quebec .....	1,359,027
1844	Canada, Lower .....	697,084	"	New Brunswick .....	331,233
1846	Assiniboia .....	4,871	"	Nova Scotia .....	440,572
1848	Canada, Upper .....	725,579	"	Prince Edward Island .....	108,291
1848	do Lower (estimated) .....	775,000	"	Manitoba .....	65,954
1848	Prince Edward Island .....	62,678	"	British Columbia .....	49,459
1849	Assiniboia .....	5,391	"	No. W. Territories .....	56,446
1851	Canada, Upper .....	952,004	1890	Canada estimated at * .....	4,973,532
1851	Nova Scotia .....	276,854			
1851	New Brunswick .....	193,800			
1851	Canada, Lower .....	890,261			
1855	Prince Edward Island .....	71,490			
1856	Assiniboia .....	6,691			

\* Exclusive of Labrador Coast and Newfoundland.

## COMPARATIVE Statement of Acadian Population in the Maritime Provinces, from 1749 to 1771, with the same in 1871.

Localities.	1749.	1755, Before the Expul- sion.	1755, After the Expul- sion.	1756.	1758, After the Cap- ture of Louis- burgh.	1765.	1771.	1871.
Nova Scotia (Peninsula) .....	13,000	8,200	1,200	1,200	1,200	1,700	1,860	21,969
Cape Breton (Ile-Royale) .....	1,000	3,000	3,000	2,500	700	800	920	10,864
Prince Edward Island (St. John Island) ..	1,000	3,000	3,500	4,500	6,500	1,400	1,270	15,000
District of Shediac .....	600	3,500	4,000	2,000	300	2,000	1,101	13,008
New Brunswick								
Gulf of St. Lawrence,								
Shores .....	100	400	400	1,000	500	2,000	1,093	12,916
Baie des Chaleurs .....	100	150	150	500	400	1,000	795	9,412
St. John River .....	200	250	250	1,600	1,100	1,250	1,403	9,571
Totals .....	16,000	18,500	12,500	13,300	10,700	10,150	8,442	92,740

NOTE.—Prince Edward Island, under the French régime, bore the name of "Ile St-Jean."  
The Census of 1871 and 1881 includes all races then inhabiting Canada.



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ABORIGINAL  
OR  
INDIAN POPULATION  
OF  
CANADA, Etc.

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## ABORIGINAL POPULATION.

Localities.	Census 1871.	Census 1881.	1889.
Prince Edward Island.....	323	281	314
Nova Scotia.....	1,666	2,125	2,059
New Brunswick.....	1,403	1,401	1,574
Quebec.....	6,988	7,515	13,500
Ontario.....	12,978	15,325	17,752
Manitoba.....	(Estimated) 500	6,767	24,522
British Columbia.....	do 23,000	25,661	39,765
Labrador, Rupert's Land and North-West Territories.....	55,500	49,472	26,054
Totals.....	102,358	108,547	125,540

In 1871 and 1881 most of the population of Manitoba was included in that of the North-West Territories.

See next page for further details respecting 1889.

See also page 19 containing a statement which shows the number of Indians in 1856, according to the late Sir George Simpson who was formerly Governor of the North-West and of Rupert's Land, for the Hudson's Bay Company.

According to the census of 1871, and the memorandum therein, on the subject of the Indian population, by Dr. Charles Taché, then Deputy Minister of the Department of Agriculture, Statistics, etc., the statement above referred to, greatly overrates the Indian population. See page lxxxv of the introduction to Vol. IV of the census of 1871.

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TABLE showing the number of Resident and Nomadic Indians and Denominations to which they belong.

1889.

Localities.	Unknown.	Protestant.	Roman Catholic.	Pagan.	Totals.
Province of Ontario.....	796	9,608	6,462	886	17,752
do Quebec.....	6,487	399	6,614		13,500
do Nova Scotia.....*			2,059		2,059
do New Brunswick.....*			1,574		1,574
do Prince Edward Island.....*			314		314
do Manitoba, and N.W.T.....	1,072	7,890	6,000	9,500	24,522
Peace River District.....*	238		1,800		2,038
Athabasca.....*	2,000		6,000		8,000
McKenzie.....*	500		6,500		7,000
Eastern Rupert's Land.....*	1,173		2,843		4,016
Labrador Interior, Canadian.....†			1,000		1,000
Arctic Coast.....†	4,000				4,000
	16,266	17,897	41,166	10,446	85,775
<i>British Columbia.</i>					
West Coast Agency.....			1,852	1,241	3,093
Fraser River do.....		914	4,087		5,001
Kamloops do.....		700	1,735	125	2,560
Cowichan do.....		202	1,708		1,910
Kwaw-Kwelth do.....		20	274	1,006	1,900
O'Kanagan do.....		16	735	190	941
Kootenay do.....			499		499
North-West Coast Agency.....		2,725	108	2,807	5,640
William's Lake do.....		87	1,838		1,925
		4,664	12,836	5,969	23,469
<i>No Agencies.</i>					
Pemberston, Douglas, Lillooet, &c. (a).....			1,600		1,600
Hiletsuck.....*	2,274				2,274
Sicanece.....*			500		500
Tahelic (Nahannie).....*	400		300	300	1,000
Bands not visited.....*	8,522				8,522
Porteurs or Carrier Indians.....(b).....			1,100		1,100
Chilcoten Indians.....(c).....			550		550
Babine do.....(d).....			400		400
Akwilgate do.....(e).....			350		350
	11,196		4,800	300	16,296
Totals.....	27,462	22,561	58,802	16,715	125,540

The above is based on the report of the Department of Indian Affairs for 1889, excepting at items a, b, c, d, e.; the classification of the Indians, however, has been modified, and their number increased at a, b, c, d, e., according to information received directly from the clergy of the Roman Catholic Dioceses.

For details respecting Labrador Indians, see following pages. See also Indians of United States.

The number of Indians in the Interior of Labrador, under the Canadian Government, is estimated at 4,000 of whom 3,000 have been included in the Indian population of the Province of Quebec.

\* The number of Protestant Indians at the localities marked by an "Asterisk" is not stated in the report of Indian Affairs, 1889.

† On the N.E. Coast of Labrador, under the Newfoundland Government, there are about 1,000 Moravian and 500 Roman Catholic Esquimaux, as hereinafter shown.

‡ See Volume IV, Census of 1871, which contains an elaborate statement respecting the Indian Population of Canada.

## LABRADOR.

The total population of Whites, Indians and Esquimaux in 1890 is about fourteen thousand, distributed as follows :—

Localities.	Whites.	Indians.	Esquimaux.	Totals.
<i>Under the Canadian Government.</i>				
On the St. Lawrence, from Portneuf eastward to Blanc Sablon, a distance of 579 miles—Whites.....	4,484			4,484
Montagnais.....		1,600		1,600
In the Interior of Labrador, comprising 350 Naskapis, at height of land in the Roman Catholic Apostolic Prefecture of Mgr. Bossé.....		4,000		4,000
<i>Under the Newfoundland Government.</i>				
Whites.....	2,416			2,416
Esquimaux—1,000 of the Moravian missions and 500 of the Roman Catholic missions.....			1,500	1,500
Totals up to June, 1890.....	6,900	5,600	1,500	14,000

The white population residing on the north coast of the Gulf of St. Lawrence is chiefly of Canadian and Acadian origin. Apart from the traders and the persons employed in their establishments, the others live by fishing and hunting, and the great majority speak both English and French.

Upwards of 600 of them are Protestants, and the remainder are chiefly Roman Catholics.

### INDIANS OF THE INTERIOR.

The Indians of the Interior are the Montagnais and the Naskapis ; they speak dialects of the Cree language and number about 4,000. They are slowly disappearing ; the game on which they depend is becoming scarcer every year, owing to destructive fires.

They are scattered throughout the Anglican Dioceses of Quebec and Moosonee and the Roman Catholic Diocese of Chicoutimi, the Apostolic Prefecture of the Gulf of St. Lawrence and portion of the Apostolic Vicariate of Pontiac.

Some of the Naskapi tribe are still heathen, but the Montagnais are nearly all Roman Catholics.

### INDIANS ALONG THE COAST.

The nomadic tribes of Indians along the coast, from Portneuf and Blanc Sablon, and in the Interior are branches of the great Algonquin race, whose area once extended from the Rocky Mountains to Newfoundland and from Labrador to the Carolinas, and are known as the Montagnais or Mountaineers, the Mistassini and the Swampy Creek Indians.

The Jesuit missionaries of early times extended their labours from Canada to Labrador, and were specially successful among the Montagnais.

The Roman Catholic missions, from Portneuf to Blanc Sablon and of a portion of the interior, were placed under the jurisdiction of Mgr. Bossé, who was appointed Prefect Apostolic thereof, 29th May, 1882.

His headquarters are at Pointe-aux-Esquimaux, 477 miles below Quebec, 344 below Tadoussac, 299 below Portneuf, and 280 westward of Blanc Sablon.

The white inhabitants of the Atlantic coast, from Blanc Sablon to Cape Webeck or Harrison, above Hamilton Inlet or Baie du Rigolet, 2,416 persons in all, are chiefly British sailors or their descendants, who prefer a rude, lonely, semi barbarous life to the restraints of civilization. Salmon and cod fishing is their main occupation, and the products of their industries are exchanged with traders, on the spot, for such commodities as they require. The winter is spent in trapping fur-bearing animals. At the various mercantile establishments along the coast, a number of book-keepers, clerks, servants and others, are resident.

Out of the 2,416, 1,489 belong to the Church of England; 486 to the Church of Rome, 285 are Wesleyans, 30 are Presbyterians, and 126 belong to other denominations.

There are nine places of worship: 4 Anglican, 3 Roman and 2 Wesleyan.

During the fishing season, a steamer, carrying mails and passengers, plies fortnightly on the coast, connecting with the Newfoundland coastal steamer at Battle Harbour.

#### ESQUIMAUX POPULATION.

Northern Labrador, from Cape Webeck or Cape Harrison to Cape Chudleigh, is the proper home of the Esquimaux of this region. They call themselves "Innuits," which means "men."—the term Esquimaux ("eaters of raw flesh") being applied to them by hostile tribes from the west.

They are of low stature, with coarse features, small hands and feet and black wiry hair. The men are expert in fishing, catching seals, and managing the light and graceful boat called the "Kayak," which outrides the rudest surges of the sea; the women are skilful in making garments from skins.

It is estimated that the Esquimaux of Labrador number about 1,700 souls, scattered along 500 miles of coast.

For more than a century the Moravian missionaries have been labouring amongst them, and with such success that nearly all of them have been reclaimed from heathenism of the worst description and brought under Christian training.

The practice of polygamy has ceased among them, and they have become, to a large extent, peaceful and industrious, and are weaned from the wandering life to which they were addicted, living around the mission stations in winter and at the fishing posts in summer.

The Moravian missionaries trade with them and export the products of their labours, giving them necessities and comforts in exchange. Once a year a missionary ship arrives laden with provisions and stores of all kinds, and carries a return cargo of furs, fish, oil, etc.

The brethren have four stations:—Hopedale, Nain, Ok-kak and Hebron. At each station there is a church, store, dwelling house for the missionaries, and workshops for the native tradesmen.

Nain, the principal mission, where 200 of the Esquimaux generally reside, is about 410 miles above Belle-Ile and 350 below Cape Chudleigh; Hopedale is south of Nain; Ok-ak is about two-thirds of the way to Hebron; the latter is about midway between Nain and Cape Chudleigh.

In seasons of famine food is freely distributed from the mission stores.

About twenty missionaries are resident on this savage coast. The hardships they have to endure may be estimated from the fact that the mean annual temperature at Nain is  $22^{\circ}.52$  Fahrenheit, and at Ok-kak  $27^{\circ}.82$ . The thermometer marks  $75^{\circ}$  occasionally in summer, while spirits freeze in the intense cold of winter.

Along Hudson's Strait, or for a distance of 500 miles from Cape Chudleigh to Nottingham Island, at the entrance to Hudson's Bay, the number of Esquimaux is estimated as not exceeding 1,500.

The men generally measure from 5 feet 2 inches to 5 feet 8 inches, and the women from 4 feet 10 inches to 5 feet  $1\frac{1}{2}$  inches. Their families generally consist of two children. They die most frequently of lung diseases.

They live by hunting and generally by fishing. Each family is generally provided with dogs and sledges, and kayaks (canoes), which they handle with great dexterity. Except in the Alaska, Mackenzie and Copper-Mine regions, where they are aggressive towards white men and the Indians of other tribes, they are of a very peaceable disposition and very kind towards their wives.

They live under tents of deer skin or seal skin, or in huts excavated in the ground or made of snow and ice. Their favourite clothing is of seal skin.

#### POLAR SEA AND ARCTIC ARCHIPELAGO.

They are found along the coast of the Polar Ocean, from Behring Sea to Dease Strait, and thence in the Arctic Archipelago at Prince William's Island, at Boothia Felix and at Igloodik, near the 70th degree of north latitude and 81st degree of west longitude. They have a settlement at Ka-pa-rok-to-lik, near Eclipse Sound, near the  $72\frac{1}{2}$ nd degree of north latitude and 78th degree of longitude.

Their remotest permanent settlement is at Etah, in latitude  $77\frac{1}{2}$  degrees and longitude  $72\frac{1}{2}$  degrees, on the Greenland coast of Smith's Sound. Greely, in 1882, found traces of their migratory encampments up to and beyond the 80th parallel of latitude.

From Etah, southward, they are found along the Greenland coast of Baffin Sea and Davis Strait, and at various fishing settlements.

Their total number has not been ascertained.

From Portneuf, westward, to Tadoussac, a distance of 344 miles, the population is estimated at about 3,500, chiefly whites. The Roman Catholic Missions along this part of the coast, and up the Saguenay to Lake St. John and its surroundings, where the country is more densely settled, are in the diocese of Mgr. Bégin, who resides at Chicoutimi.

The remainder of the region from the Labrador and Chicoutimi districts to the Archdiocese of St. Boniface are under Mgr. Lorrain.

The Anglican Missions along the north shore of the St. Lawrence from Tadoussac down to Blanc Sablon are under Bishop J. W. Williams, and those on the Atlantic Coast of Labrador under Bishop L. Jones, of Newfoundland.

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The Hudson's Bay region is under Bishop J. Horden, whose diocese is called Moosonee.

The remainder of the Roman Catholic missions westward from the Hudson's Bay region are under the jurisdiction of the Roman Catholic Archbishop Taché, Mgr. Grandin and Mgrs. Faraud and Clut, as far as the Rocky Mountains. The Anglican missions in the same territory are under Bishop Sullivan, Machray, Anson, Pinkham, Young and Bompas.

West of the Rocky Mountains in British Columbia the Indian missions are situated in the Roman Catholic diocese of Mgrs. d'Herbomez, Durieu and Lemmens; and in the Anglican corresponding dioceses of Bishops Hill, Sillitoe and Ridley.

The Indian population in the above named regions is shown on the general tabular statement based chiefly on the last report of the Indian Department; it numbers 125,540 so far as reported, and includes most of the Indians in the Province of Quebec and elsewhere so far as ascertained.

#### INDIAN Tribes of the Hudson's Bay Territories.

Names and Location.	Estimated Population Prior to July, 1857.
<i>West of the Rocky Mountains.</i>	
Koolooch Group, comprising 13 Tribes .....	45,000
Athabaskan Group, comprising 13 Tribes on both sides of the Rocky Mountains.....	35,000
	80,000
<i>East of the Rocky Mountains.</i>	
Blackfoot and Sioux, comprising 3 Tribes.....	30,000
Algonquin Group, comprising 12 Tribes.....	17,570
<i>Esquimaux.</i>	
No return of Numbers, estimated at.....	8,000
<i>Estimated Population of Territory.</i>	
East of the Mountains.....	55,570
West do as above .....	80,000
Total.....	135,570

See report of the Select Committee on the Hudson's Bay Company, ordered to be printed by the House of Commons, England, 31st July and 11th August, 1857.

# LIST of the Missionaries of the Roman Catholic Church in the Canadian North-West.

1818—Mgr. J. N. Provencher. Severe Dumoulin.	1854—Brother Bowes.
1820—Th. Destroismaisons.	1855—Rev. F. J. M. J. Lestanc.
1822—Jean Harper.	1857—Rev. F. Lefloch.
1827—Fr. Boucher.	Brother Clut, now auxiliary of Bishop Faraud
1831—G. A. Belcourt.	Brother Salasse.
1832—Ch. Ed. Poiré.	Brother Perreard.
1833—J. B. Thibault, Vic. Gen.	Rev. F. Frain.
1837—M. Demers, late Bishop of Vancouver.	Rev. F. Eynard.
1838—Jos. Ars. Mayrand.	Brother Kearney.
1841—Jos. E. Darveau.	They came on one of the Hudson's Bay Co. steamers. This Co. gave them free passage from London to York Factory.
1844—L. Laflèche, now Bishop of Three Rivers.	
Jos. Bourassa.	Mons. Gascon, priest.
1845—Rev. Father Aubert.	1858—Rev. F. Mestre.
Brother Taché, now Bishop of Manitoba.	Rev. F. Moulin.
1846—Rev. F. F. X. Bernond.	Brother Cunningham.
Brother Henry Faraud, now Bishop of Athabasca.	1860—Rev. F. Seguin.
Brother Louis Dubé.	Rev. F. Caer.
1848—Rev. F. A. Maisonneuve.	Rev. F. Gasté.
Brother F. J. Tissot.	Mons. Oram.
1849—Rev. F. J. Tissot (same as above, ordained priest.)	Brother Boisramé.
1852—Rev. F. H. Grollier.	Rev. F. L. Simonet.
Rev. F. Lacombe.	Brother Glénat.
Rev. F. Remas.	1861—Rev. F. Richer.
Rev. F. Végreville.	Rev. F. André.
Brother A. Raynard.	1862—Rev. F. Petitot.
1854—Rev. F. Vital Grandin, now Bishop of St. Albert.	Brothers Scallen and Duffy.
	MM. Ritchot and Gernain.
	M. Emile Girouard.
	1865—Rev. Fathers Genin, Tissier and Leduc.
	Brothers Lalican, Hand and Mooney.

NOTE.—Prior to the nineteenth century we know of two missionaries who contributed to the discovery of those remote parts of Canada. They are Rev. Father Messager who accompanied the famous discoverer Varennes de la Vérandrye, in 1731, and Rev. Father Aunau, who was killed on an island of Lac de la Croix (Cross Lake) by the Sioux in 1736; he was accompanying one of the sons of La Vérandrye, who was also killed with all his companions.

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land of Lac de la  
randrye, who was

INDIAN POPULATION

OF THE

UNITED STATES OF NORTH AMERICA.

## INDIANS—United States of North America.

PRIOR TO JULY, 1857.

## STATEMENT of the Number of Indians East of the Mississippi:—

Chippewas, Ottawas and Potowatomies..	8,000
Chippewas.....	6,800
Indians in New York.....	4,500
do from do at Green Bay.....	725
Menomonies.....	4,200
Miamis.....	1,200
Ottawas and Chippewas of L. Michigan.....	530
Penobscots, in the State of Maine.....	441
Passamaquoddies do.....	400
	<u>26,796</u>

## STATEMENT of the Number of Indians who have been removed from the East to the West of the Mississippi:—

Creeks.....	25,000
Choctaws.....	18,500
Cherokees.....	15,000
Chickasaws.....	5,400
Winnebagoes.....	4,600
Seminoles.....	3,000
Potawatomies.....	1,540
Shawnees.....	1,250
Delawares.....	826
Wyandots.....	623
Kickapoos.....	470
Weas.....	282
Senecas from Sandusky.....	251
do and Shawnee.....	211
Ottawas.....	200
Piankeshaws.....	162
Peorias and Kaskaskias.....	132
	<u>77,447</u>

## STATEMENT of the Number of Indians, natives of the Country West of the Mississippi and East of the Rocky Mountains:—

Crows.....	45,000
Blackfeet.....	30,000
Sioux and Tetons.....	27,500
Mandans.....	15,000
Minetarees.....	15,000
Pawnees.....	10,000
Assiniboinis.....	8,000
Cumanches.....	7,000
Ozages.....	5,120
Sacs.....	4,800
Crees.....	3,000
Gros Ventres.....	3,000
Aricaras.....	3,000
Chayennes.....	2,000
Foxes.....	1,600
Ottoes.....	1,600
Kansas.....	1,470
Omahas.....	1,400
Ioways.....	1,200
Caddoes.....	800
Pancas.....	800
Sacs of the Missouri.....	500
Quapas.....	450
Arapahays.....	25,000
Keewas.....	
Ayutans.....	
Kanivavish.....	
Kaskayas.....	
Padoucas, &c.....	
	<u>213,240</u>

The number of Indians residing West of the Rocky Mountains in 1820, according to the report of a Commissioner of the United States on Indian Affairs, amounted to 171,200.

See Report from the Select Committee on the Hudson's Bay Company, ordered to be printed by the House of Commons, England, 31st July and 11th August, 1857.

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Indians

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Osage,  
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Blackfeet  
Crow  
Flathead  
Fort Belk  
Fort Peck  
Tongue R

# INDIAN Population in the United States of North America, by Agencies. (From the Report of the Honourable Commissioner of Indian Affairs, U. S., for 1888.)

Name of Agency.	Number.	Total.
<i>Arizona.</i>		
Colorado River Agency	2,527	
Pima do	1,550	
San Carlos do	4,977	
Indians in Arizona, not under an Agent	914	9,468
<i>California.</i>		
Hoopa Valley Agency	422	
Mission do	3,006	
Round Valley do	608	
Yule River do	681	
Indians in California, not under an Agent	6,456	
Klamaths	213	11,476
<i>Colorado.</i>		
Southern Ute Agency		978
<i>Dakota.</i>		
Cheyenne River Agency	2,965	
Crow Creek and Lower Brulé Agency	2,274	
Devil's Lake Agency	2,182	
Fort Berthold do	1,322	
Pine Ridge do	4,873	
Rosebud do	8,291	
Sisseton do	1,406	
Standing Rock do	4,690	
Yankton do	1,776	29,860
<i>Idaho.</i>		
Fort Hall Agency	1,444	
Lemhi do	557	
Nez Percé do	1,460	
Indians in Idaho, not under an Agent	600	4,061
<i>Indian Territory.</i>		
Cheyenne and Arapahoe Agency	3,434	
Keowa, Comanche and Wichita Agency	4,182	
Osage do	1,905	
Ponca, Pawnee and Otoe do	1,968	
Quapaw do	1,049	
Sac and Fox do	2,261	
Union do	61,000	75,799
<i>Iowa.</i>		
Sac and Fox Agency		380
<i>Kansas.</i>		
Pottawatomie and Great Nemaha		1,007
<i>Michigan.</i>		
Mackinac Agency		7,313
<i>Minnesota.</i>		
White Earth Agency		6,038
<i>Montana.</i>		
Blackfeet Agency	2,026	
Crow do	3,226	
Flathead do	2,280	
Fort Belknap Agency	1,650	
Fort Peck do	2,917	
Tongue River do	795	12,894

Indians, natives of the  
West and East of the

45,000  
30,000  
27,500  
15,000  
15,000  
10,000  
8,000  
7,000  
5,120  
4,800  
3,000  
3,000  
3,000  
2,000  
1,600  
1,600  
1,470  
1,400  
1,200  
800  
800  
500  
450

25,000

213,240

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# INDIAN Population of the United States of North America, &c.—*Concluded.*

Name of Agency.	Number.	Total.
<i>Nebraska.</i>		
Santee and Flandreau Agency.....	1,312	3,604
Omaha and Winnebago do .....	2,382	
<i>Nevada.</i>		
Nevada Agency.....	4,558	8,238
Western Shoshone Agency .....	3,680	
<i>New Mexico.</i>		
Mescalero Agency.....	1,202	28,241
Navajo do .....	19,277	
Pueblo do .....	7,762	
<i>New York.</i>		
New York Agency.....		4,063
<i>North Carolina.</i>		
Eastern Cherokee in North Carolina and Tennessee.....		3,000
<i>Oregon.</i>		
Grande Ronde Agency.....	510	4,647
Klamath do .....	972	
Siletz do .....	612	
Umatilla do .....	894	
Warm Springs do .....	859	
Indians in Oregon, not under an Agent.....	800	
<i>Texas.</i>		
Indians in Texas, not under an Agent.....		290
<i>Utah.</i>		
Ouray Agency.....	1,252	2,698
Nintah do .....	1,056	
Indians in Utah, not under an Agent .....	390	
<i>Washington.</i>		
Colville Agency.....	3,150	10,570
Neah Bay do .....	781	
Quinalt do .....	423	
Nesqually and S'kokomish Agency.....	1,712	
Tulalip Agency.....	1,223	
Yakima do .....	3,290	
<i>Wisconsin.</i>		
Green Bay Agency.....	3,000	8,006
La Pointe do .....	3,796	
Indians in Wisconsin, not under an Agent .....	1,210	
<i>Wyoming.</i>		
Shoshone Agency.....		1,800
<i>MISCELLANEOUS.</i>		
Miami and Seminole in Indiana and Florida.....	802	1,302
Oldtown Indians in Maine.....	410	
Total.....		235,263

See J. B. Harrison's Indian Reservations.

-Concluded.

er.	Total.
12 82	3,694
58 90	8,238
02 77 12	28,241
...	4,963
...	3,000
0 2 2 4 0	4,647
...	290
02 6 0	2,698
0 1 3 2 3 0	10,579
0 6 0	8,006
...	1,800
2 0	1,302
...	235,263

## PART II.

### NAVIGABLE WATERS.

#### CANALS.

#### RAILWAYS.

### COMPARISON OF ROUTES—LIVERPOOL TO JAPAN.

### GOVERNMENT TELEGRAPH LINES AND CABLES.

## ST. LAWRENCE NAVIGATION.

## DISTANCES.

FROM STRAIT OF BELLE-ILE TO DULUTH, AT HEAD OF LAKE SUPERIOR.

From	To	Sections of Navigation.	Statute Miles.	
			Inter- mediate.	Total to Strait of Belle-Ile.
Straits of Belle-Ile.....	Cape Whittle.....	Gulf of St. Lawrence.....	240	240
Cape Whittle.....	West Light, Anticosti.....	do.....	201	441
West Light, Anticosti.....	Father Point.....	River St. Lawrence.....	203	643
Father Point.....	Rimouski.....	do.....	6	649
Rimouski.....	Bic.....	do.....	12	661
Bic.....	Ile-Verte.....	do.....	39	700
Ile-Verte (opp. Saguenay).....	Quebec.....	do.....	126	826
Quebec.....	Three Rivers.....	do to Tide-water.....	74	900
Three Rivers.....	Montreal.....	do.....	86	986
Montreal.....	Lachine.....	Lachine Canal.....	84	994
Lachine.....	Beauharnois.....	Lake St. Louis.....	154	1,009
Beauharnois.....	Ste-Cécile.....	Beauharnois Canal.....	114	1,021
Ste-Cécile.....	Cornwall.....	Lake St. Francis.....	329	1,053
Cornwall.....	Dickinson's Landing.....	Cornwall Canal.....	114	1,065
Dickinson's Landing.....	Farran's Point.....	River St. Lawrence.....	5	1,070
Farran's Point.....	Upper end Croyle's Island.....	Farran's Point Canal.....	3	1,071
Upper end Croyle's Island.....	Williamsburg or Morrisburg.....	River St. Lawrence.....	104	1,081
Williamsburg.....	Rapide-Plat.....	Rapide-Plat Canal.....	4	1,085
Rapide-Plat.....	Point Iroquois Village.....	River St. Lawrence.....	44	1,090
Point Iroquois Village.....	Upper end Pres-qu'île.....	Point Iroquois Canal.....	3	1,093
Pres-qu'île.....	Point Cardinal, Edwardsburg.....	Junction Canal.....	28	1,095
Point Cardinal.....	Head of Galops Rapids.....	Galops Canal.....	2	1,097
Galops Rapids.....	Prescott.....	River St. Lawrence.....	74	1,105
Prescott.....	Kingston.....	do.....	59	1,164
*Kingston (See note).....	Port Dalhousie.....	Lake Ontario.....	170	1,334
Port Dalhousie.....	Port Colborne.....	Welland Canal.....	27	1,361
Port Colborne.....	Amherstburg.....	Lake Erie.....	272	1,593
Amherstburg.....	Windsor.....	River Detroit.....	18	1,611
Windsor.....	Foot of St. Mary's Island.....	Lake Ste-Claire.....	25	1,636
Foot of St. Mary's Island.....	Sarnia.....	River Ste-Claire.....	33	1,669
Sarnia.....	Foot of St. Joseph's Island.....	Lake Huron.....	270	1,939
Foot of St. Joseph's Island.....	Foot of Saut-Ste-Marie.....	River St. Mary.....	47	1,986
Saut-Ste-Marie.....	Head of Saut-Ste-Marie.....	Saut-Ste-Marie Canal.....	1	1,987
Head of Saut-Ste-Marie.....	Pointe-aux-Pins.....	River St. Mary.....	7	1,994
Pointe-aux-Pins.....	Duluth.....	Lake Superior.....	390	2,384

Duluth is 124 miles South-West of Port Arthur, formerly called "Prince Arthur's Landing."

Of the 2,384 miles from the Strait of Belle-Ile to the head of Lake Superior, 71½ miles are artificial navigation and 2,312½ open navigation.

Straits of Belle-Ile to Liverpool, 1,942 geographical, or 2,234 statute miles.

The total ascent from tide-water to Lake Superior is assumed to be not less than 602½ feet above tide-water at Three Rivers, and 601.78 above tide-water at New York, according to the most recent information obtained up to the 7th April, 1883.

For details respecting the various sections of rivers and canal navigation, viz.:—The intermediate and total distances; the intermediate and total rise above tide water; the dimensions and depth of each canal, and of each lock, &c., on the St. Lawrence route of navigation and its tributaries, &c., see tabulated profiles Nos. 4, 13, 14, 15, 39 of Appendix No. 30 of General Report on Public Works, 1867 to 1882, and new Table of Canals further on.

For dates of opening and closing of navigation, see Appendix No. 19. Report P. W., 1886-87.

\* The Murray Canal, between Weller's Bay and Bay of Quinté, is not on the direct line of navigation, and is for the use of coasting navigation in the locality.

## Draught of Water—St. Lawrence Navigation.

SUPERIOR.

Statute Miles.

Inter-  
mediate.  
Total  
to Strait  
of  
Belle-Ile.

240	240
201	441
203	643
6	649
12	661
39	700
126	826
74	900
86	986
84	994
15	1,009
11	1,021
32	1,053
11	1,065
5	1,070
3	1,071
10	1,081
4	1,085
4	1,090
3	1,093
2	1,095
2	1,097
7	1,105
59	1,164
170	1,334
27	1,361
2	1,593
18	1,611
25	1,636
33	1,669
270	1,939
47	1,986
1	1,987
7	1,994
390	2,384

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1882, and new

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## Sections of Navigation.

Sections of Navigation.	Minimum depth available in 1890.	Depth when work now in progress, is completed.
	Feet.	Feet.
Dredged Channel—Quebec to Montreal—In progress .....	25 to 27 5	27 5
Lachine Canal—Enlargement completed .....	12	14
Beauharnois Canal—To be enlarged or another canal to be constructed on north shore opposite .....	9	14
Cornwall Canal—Enlargement commenced in 1876—In progress .....	9	14
Williamsburg Canals—Enlargement commenced in 1884—In progress .....	9	14
Murray Canal—Completed—Not on main line of navigation .....	10	10
Burlington Bay Canal—Not on main line of navigation .....	10	10
Welland Canal—Enlargement completed—Deepening to 14 ft. completed .....	14	14
Saut-Ste-Marie Canal—State of Michigan—Enlargement completed .....	16 8	18 8
do Canada—Work commenced, 1888 .....		

NOTE.—See Canals, further on.

The dredged channel from Montreal down to Cap-à-la-Roche, is finished to a depth of 27½ feet.

At the latter place and at Cape Charles, the channel will be finished to the same depth, probably towards end of 1891.

## LAKE NAVIGATION.

## LAKE SUPERIOR TO TIDE WATER.

Names of Lakes, and of Rivers, connecting the same.	STATUTE MILES.			DEPTH IN FEET.		Area in Square Miles.	Estimated Elevation above Sea, at Three Rivers.
	Greatest Length.	Greatest Breadth	Average Breadth	Greatest.	Mean.		
						Sir W. Logan.	Feet.
Superior .....	390	160	80	.....	900	31,420	602
St. Mary's River .....	35	4	.....	60	30	.....	584
Michigan .....	345	84	58	.....	1,000	25,590	578
Green Bay .....	100	25	18	.....	500	.....	578
Mackinaw Straits .....	50 Not added below.	20	10	200	40	.....	578
Georgian Bay .....	130	55	40	.....	500	.....	576
Huron .....	270	105	70	.....	900	23,780	576
St. Claire River .....	33	.....	.....	50	35	.....	570
St. Claire Lake .....	25	25	20	27	15	360	570
River Detroit .....	25	3	1	37	20	.....	566
Lake Erie .....	250	60	38	204	90	10,030	566
Niagara River .....	35	3	1	.....	30	.....	240
Lake Ontario .....	190	52	40	600	412	7,330	142
Lake St. Francis .....	38	5	4	80	36	132	58
Lake St. Louis .....	15	7	5	68	30	75	0
Lake St. Peter .....	30	9	7	40	8	200	.....
River St. Lawrence, connecting Lakes between Kingston and Three Rivers .....	186	.....	.....	.....	20	.....	.....
Total length of Lake Navigation do .....	2,112	Inclusive of River portions.			98,917	.....	.....
do .....	1,778	Exclusive of River portions.			.....	.....	.....

✕ PRINCIPAL Lakes in the Provinces, Districts and Territories of Canada.

Name of Lakes.	Length in Miles.	Mean Breadth in Miles.	Area in Square Miles.	Depth in Feet.	Elevation above the Sea in Feet.	Remarks.
Abitibi, N.W.T. ....	60	3 to 15	512	20	857	245 feet above Lake Temiskaming.
Ainslie, C.B., N.S., discharges into the Margerie.	15	3	30	30	.....	
Athabasca, N.W.T. ....	200	20 to 40	4,400	Deep, except at west end.	About 600	
Bear, Great N.W.T. ....	250	Max. 185	11,200	Over 270	200	Elevation given by Dr. Richardson, Frank- lin Exp.
Bras-d'Or, C.B., N.S.	60	1 to 48	570	30 to 360	3 to 4 at low tide.	An arm of the sea.
Champlain, Q. & U.S.	130	$\frac{1}{2}$ to 10	430	50 to 280	.....	150 feet above the Mac- kenzie, at Fort Simp- son.
Erie, O. ....	250	Max. 60 Mean 38	10,030	Max. 204 Mean 90	567	
Grand, N.B. ....	25	3 to 6	84	.....	.....	
Great Slave, N.W.T. ....	390	50	10,100	Deep as Lake Superior.	391	According to Prof. H. Y. Hind.
Huron, O. ....	270	Max. 105 Aver. 70	23,780	Mean 450 Max. 900	576½	
Kootenay, B.C. ....	65	1 to 12	500	.....	1,800	
Little Slave, Atha- basca District.	40	3	.....	300 to 400	.....	813 feet above Lake Superior.
Long Lake, Assini- boia District.	122	Max. 24	1,850	.....	670	
Manitoba, Man. ....	345	58	25,590	800 to 1,000	578½	
Michigan, U.S. ....	92	.....	2,000	.....	.....	Per A. L. Light in 1880 do Baird.
Mistassini, N.E.T. ....	60 to 70	40 to 50	1,450	A 540-foot line found no bot- tom.	1,416	
Nipigon, O. ....	40 to 50	20 to 35	300	.....	665	
Nipissing, O. ....	190	Max. 52 Mean 20	7,330	Over 600 Mean 412	249	According to Prof. H. Y. Hind.
Ontario, O. ....	11	4 to 6	40	.....	.....	
Rossignol, N.S. ....	28	17 to 20	366	3 to 225	278	
St. John, Q. ....	30	18	300	.....	701½	The deepest lake on the Ottawa.
Simcoe, O. ....	390	Max. 160 Mean 80	31,420	480 to 1,200 Mean 900	603	
Superior, O. ....	75	1 to 10	113	.....	612	
Temiskaming, Q. ....	260	5 to 65	9,400	42 to 90	628	According to Prof. H. Y. Hind.
Winnipeg, Man. ....	130	27	2,030	10	692	
Winnipegosis, Man. ..	75	60	1,500	.....	1,000	
Woods, Lake of the.						Circumference 300 m.

N.B.—About one-half of Lakes Ontario, Erie, Huron and Superior belong to the United States of America.

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NAVIGABLE WATERS—Manitoba and North-West Territories—between Winnipeg and Mouth of Mackenzie at Polar Ocean, North-Westward; and between Winnipeg and Fort McLeod, South-Westward.

Remarks.

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Names of Rivers and Lakes.	Length.	Width.	Depth.	Remarks.
	Miles.	Miles.	Feet.	
Lake Winnipeg, about 40 miles north of Winnipeg.	260	5 to 65	42 to 90	Below St. Andrew's Rapids, Red River, and on Lake Winnipeg, there are the "Princess Royal" and "Colville," 6 ft. draught; the "Red River," 5 ft., and the "Aurora," 6½ ft.; 1 schooner and 10 barges of 6 ft. draught.
Lakes Manitoba and Win- nipegosis.	252	3 to 15	.....	
Red River (within Mani- toba), during ordinary seasons, is navigable up to head at Goose Rapids, 220 m. above Winnipeg, on a direct line.	100	Feet. 900	8 to 2½	
Assiniboine River.....	350	150	3 to 4	No steamer since 1883, on account of shoals at St. James' Rapids, 2 miles above Win- nipeg.
Souris River (probable)....	120	100	2 to 3½	
Qu'Appelle River and Lakes	200	70 to 100	2 to 4½	
Long Lake, Assiniboia Dist.	40	.....	.....	The "Antelope," of 3 ft. draught, is the only steamer in 1890 running above St. Andrew Rapids; the "Anson Northup," the first steamer, commenced running in 1859.
Main Saskatchewan to the Forks.	332	800 to 1,000	2½ to 3½	
North Saskatchewan, Forks to Edmonton.	481	800 to 1,000	2½ to 3½	
South Saskatchewan, from the Forks.	700	750 to 2,000	5 to 8 Draft.	The "Lily," and another steamboat belonging to the Hudson Bay Co. have been running on the river up to Edmonton since 1877. (See remark below respecting the North Sas- katchewan.)
Athabasca River, from the Landing to Grand Rapids, of 83 miles in length.	168	800	2½ to 3½	
Athabasca River, from Fort McMurray to Fort Chi- pe- wyan, Lake Athabasca.	194	800	7 to 8	
Athabasca Lake.....	200	Miles. 5 to 30	7 to 8	Steamer "Graham," Hudson Bay Co., de- scends to Lake Athabasca at Chipewyan, and thence to the Fort Smith Portage, which is about 14 miles in length; this steamer also ascends a portion of the Peace River.
Fort Chipewyan to Fort Smith Portage.	102	.....	7 to 8	
Peace River (tributary)....	700	.....	7 to 8	
Fort Smith Portage to Fort Resolution, on S. side of Great Slave Lake.	190	.....	7 to 8	The steamer "Wrigley," belonging to the Hudson Bay Co., calls at all the trading Posts with supplies, and collects all the furs for the company from Fort Smith, at the foot of the rapids or portage, on Great Slave River, down to Fort McPherson, on the Peel River, the junction of which is about 67 miles above the mouth of the Mackenzie; she also plies on the lower portions of the Peace and Liard Rivers; her speed is 10 miles an hour descending, and 6 miles an hour up stream.
Fort Resolution, across Great Slave Lake to Fort Providence.	167	.....	7 to 8	
Great Slave Lake.....	300	10 to 60	Depth. 390 Shoalest portions. 8 to 12	
Mackenzie River, from Fort Providence to Polar Sea.	1,000	½ to 1½	.....	

REMARK.—The North Saskatchewan is navigable for boats or barges from Mountain House to Edmonton, 150 miles, and from Edmonton by steamboats for about two months down to Carlton House, about midway to Lake Winnipeg. Navigation is interrupted at 50 miles below Carlton House, and also below Cedar Lake (Lake Bourbon), towards Lake Winnipeg, for some miles at each place. The draught of water is generally 2½ to 3½ feet, but in very low stages of the water, it is scarcely more than 18 inches. For further particulars, see following table and remarks.

TABLE of approximate distances between various points, from Mouth of Red River, at Head of Lake Winnipeg, down to Grand Rapid, at Mouth of the North or Main Saskatchewan, towards foot of Lake, and thence along the Saskatchewan up to Fort Edmonton, as per map, Department of Interior, published in 1887.

Names of Localities.	Inter- mediate distances.	Total distances from Mouth of Red River
	Statute Miles.	Statute Miles.
<i>Lake Winnipeg.</i>		
1. Mouth of Red River to Mouth of Saskatchewan, or from Head of Lake Winnipeg down to Grand Rapid towards Foot of Lake.....	220	220
<i>North or Main River Saskatchewan.</i>		
2. Mouth of Saskatchewan, on Lake Winnipeg, at Grand Rapid up to Foot of Cedar Lake.....	20	
3. Foot to Head of Cedar Lake.....	30	
4. Head of Cedar Lake to Cumberland House.....	115	
5. Cumberland House to Tobin's Rapids.....	52	
6. Tobin's Rapids to Fort à la Corne.....	92	
7. Fort à la Corne to Forks, North and South Saskatchewan.....	14	
8. Forks of Saskatchewan to Cole's Rapid.....	9	
9. Cole's Rapid to Carlton House.....	71	
10. Carlton House to Battleford, on original Pacific Railway Line.....	110	
11. Battleford to Fort Pitt.....	95	
12. Fort Pitt to Fort Saskatchewan.....	185	
13. Fort Saskatchewan to Fort Edmonton.....	20	
Total from Mouth of Red River to Fort Edmonton, at about 30 miles above intersection of original Pacific Railway Line.....		813
		1,033

See pages 392 to 395, Note A, Appendix No. 8 of General Report on Public Works, 1867 to 1882.

### REMARKS.

The navigation between the mouth of Red River and Fort Edmonton is performed by three steamers of the Hudson's Bay Company, one of which plies between Red River and Grand Falls, near Lake Winnipeg. These falls are impassable for vessels. Here the Company has built a tramway, about four miles in length, to overcome the falls, which involves the transhipment of passengers and freight.

A second steamer runs from the head of the falls to the rapid 50 miles below Carlton House, or about 353 miles.

A third steamer completes the journey, thence to Fort Edmonton, about 460 miles.

The entire journey of 1,033 miles is said to occupy a fortnight.

The depth available during low water is said to be from  $1\frac{1}{2}$  to  $3\frac{1}{2}$  feet.

For distances from Prince Arthur's Landing to Winnipeg and westward by Canadian Pacific Railway—See tables of Appendix No. 30, Parts III and IV, of General Report on Public Works, 1867 to 1882.

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Intermediate distances.	Total distances from Mouth of Red River
Statute Miles.	
220	220
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There are no steamers on the Assiniboine River since 1883. This river has not been navigable since that date owing to low water at St. James' Rapids about two miles above Winnipeg; its average width is about 75 yards and its average depth about 4 feet in low water, but this frequently changes, as the bed of the river is mostly composed of sand, and where the flow of the river is rapid there are many sand bars, which are continually changing.

The "Antelope," 3 feet draught of water, is the only steamer running on Red River this side of St. Andrew's Rapids.

Below St. Andrew's Rapids and on Lake Winnipeg there are: the "Princess," 6 feet draught of water; the "Colville," 6 feet draught; the "Red River," 5 feet draught; the "Aurora," 6½ feet draught; one schooner 6 feet draught, and eight or ten barges, 6 feet draught each.

The average width of the Red River is about 300 yards. The depth varies greatly. From mouth of this river to St. Andrew's Rapids—29 miles—it averages 8 feet; from head of rapids to Winnipeg—10 miles—4 feet, and from this last point to head of navigation, at Goose Rapids, a distance, in a direct line, of 220 miles and 450 by water, it averages 2½ to 3 feet.

The St. Andrew's Rapids are 11 miles long at low water. During ordinary seasons the Red River is navigable from Lake Winnipeg to Goose Rapids, with the exception of the St. Andrew's Rapids.

The average depth of Lake Winnipeg varies from 7 to 15 fathoms. At Grand Rapids, at the boat landing, the depth of lake is 7 to 8 feet.

See letter of D. Smith, Clerk of Works, Manitoba, 14th May, 1890, No. 108,688, to G. F. Baillairgé, Deputy Minister of Public Works, Ottawa.

### RIVER SASKATCHEWAN.

Approximate estimate of the number of cubic feet of water passing down the South Branch, the North Branch, and the Main Saskatchewan.

	Cubic Feet per Second.	Cubic Feet per Minute.	Cubic Feet per Hour.
South Branch .....	34,285	= 2,057,094	= 123,425,616
North Branch .....	25,281	= 1,516,866	= 91,011,360
Main Saskatchewan, at Fort à la Corne .....	59,567	= 3,574,021	= 214,441,290
do near Deering River .....	57,493	= 3,449,583	= 206,975,000

For particulars respecting the Saskatchewan, see pages 392 to 395 of General Report on Public Works, 1867 to 1882.

For further particulars about the Saskatchewan River, see the Report made by Prof. H. Y. Hind, and published by order of the Legislature of Canada, 1859.

## CANALS OF CANADA.

Names.	No. of Locks	Length of Locks in feet.	Breadth of Locks in feet.	Depth of Water in Sills in feet.	Length in Statute Miles.
<i>River St. Lawrence and Lakes.</i>					
Saut Ste. Marie—Being constructed on St. Mary's Island, on N. side of rapids, between Lake Huron and Lake Superior.....	1	600	85	18	
Welland Canal—(Enlargement completed).....	27	270	45	14	26 $\frac{1}{2}$
do River Branches.....	2	150	26 $\frac{1}{2}$	9 $\frac{1}{2}$	
do Grand River Feeder.....	2	200, 150	45, 26 $\frac{1}{2}$	9	21
do Port Maitland Branch.....	1	185	45	11	1 $\frac{1}{2}$
Burlington Bay—No locks; channel.....			103	11	
Murray Canal do ; do.....			80	11	5 $\frac{1}{2}$
Calops Canal—Being deepened to a navigable depth of 14 feet on lock sills.....	3	200	45	9	7 $\frac{1}{2}$
Rapide Plat Canal—Being deepened to a navigable depth of 14 feet on locks sills.....	2	200	45	9	4
Farran Point Canal—Being deepened to a navigable depth of 14 feet on lock sills.....	1	200	45	9	$\frac{1}{2}$
Cornwall Canal—Being deepened to a navigable depth of 14 feet on locks sills.....	6	4-200 ; 2-270	45	9	11 $\frac{1}{2}$
Beauharnois Canal—To be enlarged or a new canal built, with a navigable depth of 14 feet on sills.....	9	200	45	9	11 $\frac{1}{2}$
Lachine Canal—(Enlargement completed).....	5	270	45	14	8 $\frac{1}{2}$
<i>The River Ottawa.</i>					
St. Ann's Lock.....	1	200	45	9	$\frac{1}{2}$
Grenville Canal.....	5	200	45	9	5 $\frac{1}{2}$
Chute à Blondan Canal—Not used since construction of Carillon Canal and dam 1,781 feet long across the Ottawa.	1	130	32	6	$\frac{1}{2}$
Carillon Canal.....	2	200	45	9	$\frac{1}{2}$
Culbute Canal—Upper Ottawa River—Locks of wood; aggregate length of dams 625 feet.....	2	200	45	5	
<i>Rideau Navigation—Ottawa to Kingston.</i>					
Rideau Canal—33 locks ascending, 14 locks descending..	47	134	33	4 $\frac{1}{2}$ to 5	126 $\frac{1}{2}$
River Tay Canal.....	2	134	32	5 $\frac{1}{2}$	6
<i>River Richelieu and Lake Champlain.</i>					
St. Ours Lock and Dam.....	1	200	45	7	$\frac{1}{2}$
Chambly Canal.....	9	122 to 125	22 $\frac{1}{2}$ to 24	7	12
<i>River Yamaska.</i>					
Lock and Dam 1,000 feet long, at Ile à Cardin, about 2 miles below Yamaska Village.....	1	162 $\frac{1}{2}$	31	7	$\frac{1}{20}$
<i>Rivière du Lièvre.</i>					
Lock and Dam 288 feet long.....	1	162 $\frac{1}{2}$	32 $\frac{1}{2}$	8	$\frac{1}{20}$
<i>Trent River Navigation.</i>					
Canals and Locks detached—Bay of Quinté to Balsam Lake, <i>via</i> Bobcaygeon, Fenelon Falls and Cameron's Lake, 165 miles. Bay of Quinté to Port Perry, Lake Scugog, <i>via</i> Bobcaygeon and Sturgeon Lake, 190 miles.	13	134	33	5 to 5 $\frac{1}{2}$	190
<i>St. Peter's Canal, Bras-d'Or Lake, Nova Scotia.</i>					
St. Peter's Canal (Cape Breton).....	1	200	48	Lowest water 18	Feet 2,400

# EXPENDITURE on Construction and enlargement of the Canals of Canada, 1821 to 1889.

Depth of Water in Sills in feet.	Length in Statute Miles.	NAMES.	Expenditure prior to 1st July, 1867.	Expenditure from 1st July, 1867 to 30th June, 1889.	Total Expenditure to 30th June, 1889.
			\$ cts.	\$ cts.	\$ cts.
18		Beauharnois .....	1,611,424 11	124,290 47	1,735,714 58
14	26	Carillon and Grenville..	(a) 63,053 64	3,977,920 07	4,040,973 71
9		Chambly .....	634,711 76	276,061 97	910,773 73
9	21	St. Ours Lock .....	121,537 65	45,174 58	166,712 23
11	1	Cornwall .....	1,933,152 69	1,056,135 84	2,989,288 53
11		Culbute .....		413,717 48	413,717 48
11	5	Lachine .....	(b) 2,587,532 85	6,633,681 87	9,221,214 72
		Murray .....		1,043,046 41	1,043,046 41
9	7	Rideau .....	(c) 4,064,764 07	121,097 76	4,185,861 83
9	4	Saut-Ste-Marie .....		42,164 01	42,164 01
9		St. Ann's .....	134,456 51	1,039,514 24	1,173,970 75
9		St. Peter's .....	156,823 32	520,743 95	677,267 27
9		Tay .....		407,764 72	407,764 72
9	11	Trent .....	309,371 31	751,238 48	1,060,609 79
9		Ba. "ington Bay .....	432,684 40	56,839 20	489,523 60
9	11	Welland .....	(d) 7,638,239 83	16,149,710 47	23,787,950 30
14	8	Williamsburgh .....	1,320,655 54	504,098 68	1,824,754 22
		St. Lawrence Canals not apportioned .....	116,821 31		116,821 31
		do surveys .....		161,719 89	161,719 89
		do chain vessels and improve- ment of navigation .....		591,475 76	591,475 76
9		Baie Verte Canal surveys .....		44,387 53	44,387 53
9	5	Total Expenditure .....	21,124,928 99	33,960,783 38	55,085,712 37

(a) Expenditure by Imperial Government on these canals not ascertained, records relating to same having been destroyed by fire in the Ordnance Office, Montreal, in 1852.

	Imperial Government.	Provincial Government.
	(b) \$ 40,000 00	\$ 2,547,532 85
	(c) 3,911,701 47	153,062 60
	(d) 222,220 00	7,416,019 83
Other canals as above .....		6,834,392 24
	<u>\$ 4,173,921 47</u>	<u>\$16,951,007 52</u>

N.B.—Expenditures on Repairs are not included above.

The above statement was prepared by O. Dionne, Accountant of the Department of Public Works.

7	1
7	12
7	2
8	3
5 to 5	190
Lowest water	Feet
18	2,400

## VESSELS AND TONNAGE.

## REGISTERED TONNAGE of the Principal Countries in the World, 1888.

Countries.	Vessels.	Tonnage.	Average Tons to each Vessel.
United Kingdom.....	17,723	7,123,754	402
Sweden and Norway.....	11,380	2,024,471	178
German Empire.....	3,811	1,240,182	325
Canada.....	7,142	1,089,642	152
*United States.....	1,621	1,015,562	626
France.....	15,237	972,525	64
Italy.....	6,918	895,625	129
Russia.....	2,387	614,561	257
Spain.....	968	531,269	548
Australasia.....	2,786	361,634	129
Netherlands.....	621	673,781	1,085
Austria.....	9,728	287,267	30
Denmark.....	3,324	272,500	82
Greece.....	5,167	258,846	50
Turkey.....	842	182,259	216
Portugal.....	220	79,516	361
Belgium.....	65	86,391	1,329

Licensed and enrolled vessels are not included in the preceding.

\* If the licensed and enrolled vessels belonging to the United States, which are employed in the river and home trade, were included, that country would take second place, its total tonnage amounting to 4,307,475 tons.

## COMPARATIVE Statement of all Vessels (both sea-going and inland) arrived and departed from Canadian Ports (exclusive of Coasting Vessels) in 1888 and 1889.

NATIONALITIES.	Number of Vessels.	Tons Register.	FREIGHT.		Number of Men.
			Tons. Weight.	Tons Meas- urement.	
1888.					
British.....	3,316	3,326,417	1,341,407	581,945	96,033
Canadian.....	33,395	6,182,697	2,296,748	1,440,009	266,258
Foreign.....	27,592	5,708,194	1,181,602	1,441,217	278,620
Total.....	64,303	15,217,308	4,819,757	3,463,171	640,911
1889.					
British.....	3,305	3,333,079	1,304,650	586,196	105,069
Canadian.....	34,564	6,636,032	2,147,859	1,476,032	303,337
Foreign.....	27,188	6,085,110	1,596,950	1,233,337	281,680
Total.....	65,057	16,054,221	5,049,459	3,295,565	690,086

The above taken from the "Statistical Year Book of Canada," for 1889, published in 1890.

ld, 1888.

ge.	Average Tons to each Vessel.
754	402
471	178
482	325
442	152
502	626
625	64
425	129
561	257
269	548
434	129
781	1,085
267	30
600	82
446	50
259	216
616	361
891	1,329

employed in the  
nage amounting

) arrived and  
sels) in 1888

Mens- ment.	Number of Men.
1,945	96,033
0,009	266,258
1,217	278,620
3,171	640,911
6,196	1,05,069
6,032	303,337
3,337	281,680
5,565	690,086

1890.

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# RAILWAYS

OF

## CANADA, BRITISH EMPIRE

AND

## FOREIGN COUNTRIES.

### NAMES AND LENGTH.

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## List of Canadian Railways, 30th June, 1889.

(From the Railway Statistics of Canada, 1889.)

Name of Railway.	Completed.	Under Construction.
	Miles.	Miles.
Albert.....	50 75	
Albert Southern.....	10 50	6 50
Baie des Chaleurs.....	60 00	40 00
Baie de Quinte and Navigation Co.....	3 50	
Brantford, Waterloo and Lake Erie.....		5 00
Brockville, Westport and Saut-Ste-Marie.....	45 00	
Buctouche and Moncton.....	32 00	
Canada Atlantic.....	138 40	
Canada Southern.....	378 91	
Canadian Government Railways:—		
Cape Breton.....	98 75	
Eastern Extension.....	80 00	
Intercolonial.....	894 00	
Oxford and New Glasgow.....	72 35	
Prince Edward Island.....	210 60	
Canadian Pacific.....	3,415 30	
Atlantic and North-West.....	336 10	
Manitoba South-West Colonization.....	211 20	
North Shore.....	206 10	
St. Lawrence and Ottawa.....	56 50	
Toronto, Grey and Bruce.....	188 70	4,973 40
Credit Valley.....	175 20	
Ontario and Quebec.....	339 00	
West Ontario Pacific.....	26 60	
Guelph Junction.....	15 50	
Toronto Junction to Strachan Avenue.....	3 20	
Carleton Place.....	68 00	
Carleton and Grenville.....	13 00	
Central Ontario.....	104 00	
Central of New Brunswick.....	68 00	6 66
Chatham Branch.....	11 00	
Cornwallis Valley.....		14 00
Cumberland Railway and Coal Co.....	32 00	14 00
Dominion Line Co.....	4 80	
Drummond County.....	14 50	
Elgin, Petricodiac and Havelock.....	27 75	
Erie and Huron.....	73 12	
Esquimalt and Nanaimo.....	78 00	
Fredericton and St. Mary's Railway Bridge Co.....	1 33	
Grand Trunk.....	879 50	
Buffalo and Huron.....	162 00	
Grand Trunk, Georgian Bay and Lake Erie.....	172 75	
South Norfolk.....	17 00	
Montreal and Champlain Junction.....	81 25	
Great Western.....	537 72	
London and Port Stanley.....	23 84	
Wellington, Grey and Bruce.....	168 09	
London, Huron and Bruce.....	68 89	
Brantford, Norfolk and Port Burwell.....	34 73	
Midland.....	165 75	3,114 00
Toronto and Nipissing.....	111 50	
Grand Junction.....	85 40	
Whitby, Port Perry and Lindsay.....	46 50	
Victoria, Lindsay and Haliburton.....	53 25	
Northern.....	205 37	
Northern and Pacific Junction.....	111 37	
Hamilton and North-Western.....	173 90	
Madoc Junction and Bridgewater.....	8 60	
Jacques-Cartier Union.....	6 50	
Great Eastern.....	6 50	60 00
Great Northern.....	7 84	
Great North-West Central.....		50 00
Hereford.....		13 00
Irondale, Bancroft and Ottawa.....		40 00
Joggins.....	13 00	

Kent Ne  
Kingsto  
L'Asson  
Lake Es  
Lake To  
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Montreu  
Montreu  
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Ottawa a  
Pontiac a  
Pontiac B  
Qu'Appel  
Quebec a  
Quebec C  
Quebec, M  
Stanstead  
Shore Lin  
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Lay  
St. Catha  
St. John  
St. John  
St. Louis  
Stewiacke  
Thousand  
Western C  
Windsor  
Wind  
Winnipeg  
Wood Mo

## LIST of Canadian Railways, 30th June, 1889—Continued.

	Under Construction.	Name of Railway.	Completed.	Under Construction.
			Miles.	Miles.
	Miles.			
		Kent Northern.....	27 00	
		Kingston and Pembroke.....	112 75	
		L'Assomption.....	3 00	
	6 50	Lake Erie, Essex and Detroit.....	38 00	
	40 00	Lake Temiscaming Colonization and Railway Co.....	15 20	
		Lower Laurentian.....	22 00	
	5 00	Manitoba and North-Western.....	217 24	
		Saskatchewan and Western.....	15 47 1/2	
		Massawippi Valley.....	34 00	
		Montreal and Western.....		30 00
		Montreal and Sorel.....	44 07	
		Montreal and Lake Maskinonge (return of 1888).....	10 00	
		Montreal and Vermont Junction.....	23 00	
		Napanee, Tamworth and Quebec.....	28 50	27 00
		New Brunswick.....	174 00	
		New Brunswick and Canada.....	127 00	
		St. John and Maine.....	92 00	
		Fredericton.....	22 50	
		New Brunswick and Prince Edward Island.....	36 00	
		Northern and Western, of New Brunswick.....	116 00	
		Northern Pacific and Manitoba.....	112 00	
		North-West Coal and Navigation Co.....	109 50	
		Nova Scotia Central.....	34 00	40 00
		Nosbonsing and Nipissing.....	5 50	
		Ottawa and Gatineau Valley.....		3 00
		Pontiac and Renfrew.....	4 25	
		Pontiac Pacific Junction.....	71 00	15 00
		Qu'Appelle, Long Lake and Saskatchewan.....	22 00	
		Quebec and Lake St. John.....	191 00	
		Quebec Central.....	154 00	
	6 06	Quebec, Montmorency and Charlevoix.....	20 50	
		Stanstead, Shefford and Chambly.....	43 00	
		Shore Line, late Grand Southern (return of 1888).....	82 50	
	14 00	South Eastern, Montreal, Portland and Boston; Lake Champlain and St. Lawrence Junction.....	260 00	
	14 00	St. Catharines and Niagara Central.....	12 35	
		St. John Bridge and Railway Extension.....	1 75	
		St. John Valley and Rivière du Loup.....		3 00
		St. Louis, Richibucto and Buctouche (return of 1888).....	7 00	
		Stewiacke Valley and Lansdowne.....		12 00
		Temiscouata.....	81 00	
		Thousand Islands.....	4 08	
		Western Counties.....	67 00	20 00
		Windsor and Annapolis.....	84 00 1/2	
		Windsor Branch.....	116 00	
		Winnipeg and Hudson's Bay.....	40 00	
		Wood Mountain and Qu'Appelle (return of 1888).....		17 00
		Total.....	13,324 71	416 16

60 00

50 00

13 00

40 00

## RAILWAYS in British Possessions, 1888.

Countries.	Miles of Railway.	Number of Persons to each Mile.	Square Miles of Area to each Mile.
United Kingdom.....	19,578	1,924	6
India.....	14,383	14,589	114
Canada.....	12,701	391	273
Australasia.....	9,638	368	319
New South Wales.....	2,036	512	152
New Zealand.....	1,841	328	56
Cape of Good Hope.....	1,776	775	120
Victoria.....	2,018	513	43
Queensland.....	1,765	208	378
South Australia.....	1,419	224	636
Tasmania.....	318	448	83
Natal.....	220	2,168	85
Ceylon.....	181	15,746	140
Western Australia.....	241	173	4,049
Jamaica.....	93	6,489	45
Mauritius.....	92	4,002	8
Newfoundland.....	84	2,349	500
Trinidad.....	54	3,398	32
Barbadoes.....	24	7,230	7
British Guiana.....	23	12,045	4,739
Malta.....	8	20,084	15

## RAILWAYS in Principal Foreign Countries, 1887-88.

Countries.	Miles of Railway.	Number of Persons to each Mile.	Square Miles of Area to each Mile.
Europe—			
Austria-Hungary.....	15,172	2,613	16
Belgium.....	2,776	2,129	4
Denmark.....	1,214	1,736	12
France.....	29,683	1,287	7
German Empire.....	25,127	1,865	8
Greece.....	380	5,209	66
Italy.....	7,486	4,000	15
Netherlands.....	1,584	2,772	8
Portugal.....	1,192	3,950	28
Roumania.....	1,398	3,934	34
Russia.....	18,800	4,692	111
Servia.....	340	5,697	55
Spain.....	5,920	2,910	33
Sweden and Norway.....	5,529	1,207	53
Switzerland.....	1,860	1,581	9
Turkey.....	904	10,262	139
Asia—			
Japan.....	721	52,914	206
Africa—			
Egypt.....	1,109	6,147	10
America—			
Argentine Republic.....	4,700	731	239
Brazil.....	5,290	2,443	608
Chili.....	1,630	1,550	180
Mexico.....	4,700	2,223	158
Peru.....	1,625	1,661	285
United States.....	150,710	399	24
Uruguay.....	346	1,724	212

Englan  
Austri  
France  
United  
Belgiu  
Germa  
Canada  
Cuba..  
Russia  
Italy..  
Switzer  
Jamaic  
Spain..  
Mexico  
Sweden  
Chili..  
India..  
Norwa  
Portug  
Brazil  
Victori  
Columb  
New So  
Egypt..  
Natal..  
Turkey  
Maurit  
Algeria  
Western  
British  
Argent  
Queensl  
Ceylon..  
Urugua  
Tasman  
Hondur  
Japan..  
Trinidad  
Barbad

T  
Winds  
total r

# DATES of Openings of Railways in Various Countries since 1825.

Number Persons each Mile.	Square Miles of Area to each Mile.
924	6
589	114
391	273
368	319
512	152
328	56
775	120
513	43
208	378
224	636
448	83
1,168	85
746	140
173	4,049
480	45
902	8
349	500
398	32
230	7
945	4,739
984	15

Number Persons each Mile.	Square Miles of Area to each Mile.
613	16
129	4
736	12
287	7
865	8
209	66
900	15
772	8
950	28
934	34
692	111
697	55
910	33
207	53
581	9
262	139
914	206
147	10
731	239
443	608
550	180
223	158
601	285
399	24
724	212

Countries.	Year.	Date.
England . . . . .	1825	17th September.
Austria . . . . .	1828	30th do
France . . . . .	1828	1st October.
United States . . . . .	1829	28th December.
Belgium . . . . .	1835	3rd May.
Germany . . . . .	1835	7th December.
Canada . . . . .	1836	21st July.
Cuba . . . . .	1837	
Russia . . . . .	1838	4th April.
Italy . . . . .	1839	— September.
Switzerland . . . . .	1844	15th July.
Jamaica . . . . .	1845	21st November.
Spain . . . . .	1848	24th October.
Mexico and Peru . . . . .	1850	
Sweden . . . . .	1851	
Chili . . . . .	1852	— January.
India . . . . .	1853	18th April.
Norway . . . . .	1853	— July.
Portugal . . . . .	1854	
Brazil . . . . .	1854	21st April.
Victoria (Australia) . . . . .	1854	14th September.
Columbia . . . . .	1855	20th January.
New South Wales . . . . .	1855	25th September.
Egypt . . . . .	1856	— January.
Natal . . . . .	1860	26th June.
Turkey . . . . .	1860	4th October.
Mauritius . . . . .	1862	13th May.
Algeria . . . . .	1869	15th August.
Western Australia . . . . .	1869	21st January.
British Guiana . . . . .	1864	1st September.
Argentine Republic . . . . .	1864	14th December.
Queensland . . . . .	1865	31st July.
Ceylon . . . . .	1865	1st October.
Uruguay . . . . .	1869	1st January.
Tasmania . . . . .	1871	19th February.
Honduras . . . . .	1871	25th September.
Japan . . . . .	1873	17th October.
Trinidad . . . . .	1880	
Barbados . . . . .	1883	10th September.

The railways owned by the Dominion Government are the Intercolonial, Windsor Branch, Eastern Extension and Prince Edward Island Railways, with a total mileage in operation of 1,217 miles, as follows :

	Miles.
Intercolonial Railway . . . . .	894
Eastern Extension Railway . . . . .	80
Windsor Branch . . . . .	32
Prince Edward Island Railway . . . . .	211
	<u>1,217</u>

No. 9.—LINES of Railway owned by Coal and Iron Mines, for the Year ended  
30th June, 1889.

Name.	Length of Rail- way.	Gauge.	No. of Engines.	No. of Waggon.	Remarks.
NOVA SCOTIA.					
	Miles.	Ft. In.			
Intercolonial Coal Mining Co. ....	8 00	4 8½	4	118	Cars furnished by Intercolonial Ry.
Acadia Coal Co. ....	6 00	4 8½	2	24	
Londonderry Iron Co. ....	11 00	4 8½	3	27	
do do .....	3 00	3 0	3	180	
Albion .....	3 00	4 8½	3	180	
	31 00		14	349	
CAPE BRETON.					
Old Bridgeport .....	75	4 8½			Engines and cars furnished by Inter- national Coal and Railway Co.
General Mining Association—					
Sydney .....	4 80	4 8½	3	208	
Victoria .....	5 00	4 8½	2	117	
Sydney and Louisburg .....	43 00	3 0	3	224	
Gowrie .....	1 50	3 6	2	123	
International .....	12 00	4 8½	3	176	
Caledonia .....	2 25	4 8½	2	120	
	69 30		15	968	

the Year ended

marks.

y Intercolonial Ry.

furnished by Inter-  
and Railway Co.

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# TELEGRAPH LAND LINES

AND

## SUBMARINE CABLES.

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## GOVERNMENT Telegraph Lines 1890.

## LAND LINES.

Location.	Terminal Stations.	Distances in Statute Miles.
Anticosti Island, Que.	From Fox Bay to English Bay	214
British Columbia.	Ashcroft to Barkerville.	276½
Cape Breton, N.S.	Sydney to Meat Cove	128½
Cape Sable, N.S.	Barrington to Cape Sable Light House.	16
Chatham-Escuminac, N.B.		42
Campo-Bello Island, N.B.	From Welchpool to cable landings	8
Chicoutimi, Que.	Bay St. Paul to Chicoutimi.	92
Gaspé, Que.	Gaspé Basin to cable landing	28
Grand Manan Island, N.B.	Southern Head to do	21
Grosse-Isle Quarantine	Quebec to Grosse Isle <i>via</i> Orleans	46
Low Point, C.B., N.S.	Low Point to Lingan	5
Magdalen Islands, Que.	Old Harry to Amherst.	83½
Mabou-Cheticamp, C.B., N.S.		63
Newfoundland.	From Port au Basque to Cape Ray	14
North Shore St. Lawrence, Que.	Murray Bay to Point Esquimaux	496
Pelee Island, Ont.	South Dock to cable landing	23
Qu'Appelle-Edmonton, N.W.T.	Including Branch Lines	676½
Wood Mountain, N.W.T.	From Wood Mountain to Moose Jaw.	90½
Total.		2,323½

## CABLES.

	Nautical Miles.
Anticosti Island, Que.	44½
Big Bras-d'Or, C. B., N. S.	5
Campo-Bello Island, N. B.	1½
Cape Sable, N. S.	1½
Grand Manan, N. B.	7½
Godbout, North Shore, Que.	26
Grosse Isle, Que.	2
Magdalen Islands, Que.	73½
Pelee Island, Ont.	8½
Pointe aux Outardes	12
St. Pierre, Que.	2½
St. François, Que.	2
Tadoussac, North Shore, Que.	1½
Gaspé to South-West Point	
Across the Channel.	
Eastport to Campo-Bello.	
Across the Channel	
Campo-Bello to Grand Manan	
Manicouagan to Godbout.	
Grosse Isle to Isle aux Reaux.	
Meat Cove to Old Harry and Bird Rock.	
Point Pelee to Pelee Island.	
Bersimis to Pointe aux Outardes	
L'Ange Gardien to St. Pierre, Orleans Island.	
St. François to Isle au Reaux.	
Across the Saguenay River	
Total	181½

## PROPOSED Cable to Australia.

	Nautical Miles.
From Sook Bay, B.C., to Sandwich Islands.	2,350
Sandwich Islands to Fanning Island.	1,050
Fanning Island to Samoa Island.	1,260
Samoa Island to Fiji Islands.	475
Fiji Islands to Brisbane, Australia	1,620
Total.	6,755

## PROPOSED DIRECT CABLE TO SCOTLAND.

	Nautical Miles.
Anticosti to Greenly Island, Strait of Belle-Ile	240
Greenly Island to Mull, Scotland.	1,900
(Or to Westport Island, Clew Bay, Ireland.)	
Total length.	2,140

PROPOSED Cable to Japan *via* Aleutian Islands.

Vancouver Island, B.C., to Yezzo, Japan, probable length.	3,450 Nautical Miles.
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APPRO

Dover ..  
 Prince ..  
 Newfoun  
 Ireland.  
 do ..  
 Newfoun  
 do ..  
 France..  
 St. Pierr  
 England  
 Nova Sc  
 England  
 Portugal  
 Madeira  
 Cape de  
 Para, So  
 Texas, U  
 Salina C  
 Lima (7  
 Florida,  
 Cuba (12  
 Jamaica

England  
 Gibraltar  
 Malta ..  
 Suez, Eg  
 Aden ..  
 Madras,  
 Singapore

England  
 Singapore  
 Java ..

England  
 Aden ..  
 Zanzibar  
 Mozambic  
 Dalgoo B

Hong-Kon

Aden ..  
 N.B.-  
 shortest c  
 Up to  
 12,741  
 The p  
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# APPROXIMATE Distances and Historical Dates of some of the Principal Main Submarine Cable Routes in operation, 1888.

Distances in Statute Miles.	From	To	Knots or Nautical Miles.
214	Dover	Calais. (The 1st submarine cable laid, Europe, 1851).	25
276½	Prince Edward Island	New Brunswick. (The 1st cable laid, N. America, 1852).	10
128½	Newfoundland	Cape Breton, N.S. (The 2nd cable laid, N. America, 1856).	85
16	Ireland	Newfoundland. (The first transatlantic cable, 1858).	2,200
42	do	do (5 subsequent cables, 1865-66, 73-74-80, each averaging	1,870
8	Newfoundland, Placentia Bay	Sydney, C.B.	280
92	do	do <i>vid</i> St. Pierre	300
28	France	St. Pierre Miquelon	2,584
21	St. Pierre	Massachusetts, United States	749
46	England	Nova Scotia (direct)	2,540
5	Nova Scotia	Massachusetts, United States	500
83½	England	Portugal, Lisbon	823
63	Portugal	Madeira	613
14	Madeira	Cape de Verdes Islands	1,197
496	Cape de Verdes	Pernambuco, South America	1,844
28	Para, South America (11 loops)	Buenos Ayres	3,782
676½	Texas, United States	Vera Cruz, Mexico	738
90½	Salina Cruz, Mexico (7 loops)	Callao and Lima, Peru	3,040
2,323½	Lima (7 loops)	Valparaiso, Chili	1,703
	Florida, U.S.	Cuba	125
	Cuba (12 loops)	Jamaica, W. I. Islands and Demarara	2,200
	Jamaica	Isthmus Panama	590
	England (2 loops)	Gibraltar	1,154
	Gibraltar	Malta	1,120
	Malta	Alexandria, Egypt	924
	Suez, Egypt	Aden, Arabia	1,460
	Aden	Bombay, Hindostan	1,818
	Madras, Hindostan	Singapore	1,808
	Singapore (2 loops)	Hong-Kong, China	1,595
		Total cable distance, G. Britain to China, <i>vid</i> India	9,879
	England (7 loops)	Singapore	8,284
	Singapore	Java	919
	Java	Port Darwin, Australia	1,131
		Total cable distance, G. Britain to Australia, <i>vid</i> India	10,334
	England (6 loops)	Aden, Arabia	4,658
	Aden	Zanzibar, Africa	1,908
	Zanzibar	Mozambique	625
	Mozambique	Dalga Bay	966
	Dalga Bay	Natal	345
		Total cable distance, G. Britain to Cape of Good Hope	8,502
	Hong-Kong	Japan (2 loops) <i>vid</i> Shanghai, China	1,668

⚡ About 115,000 knots of submarine cables have been submerged to date of 1888.

N.B.—An examination of the spheres with the foregoing table of distances, demonstrates that the shortest cable route between Great Britain and China is *vid* the Dominion of Canada and the Pacific Ocean.

Up to 1890, 120,559.8 nautical miles of submarine cables have been submerged, viz. :—

12,741.9 by Governments, and 107,817.9 by private companies.

The preceding was furnished by F. N. Gisborne, Superintendent of Government Telegraph Lines.

For details respecting the *Submarine Cables of the World*,—See the following pages :—

2,140

1 Miles.

# THE SUBMARINE CABLES OF THE WORLD.

Extracted from the Official Document issued by The International Bureau of Telegraphic Administrations, Berne

(WITH ADDITIONS).

## SUMMARY OF CABLES OWNED BY GOVERNMENT ADMINISTRATIONS.

COUNTRY.	No. of Cables.	Length in Nautical Miles.	
		Of Cables.	Of Conductors.
Austria.....	31	97 700	106 190
Brazil.....	19	19 288	36 019
Belgium.....	2	54 250	278 500
Canada ( <i>see List of Cables, p. 49</i> ).....	21	220 500	220 500
Cochin China.....	2	795 000	795 000
Denmark.....	47	192 372	568 998
Dutch Indies.....	1	31 310	31 310
France.....	51	3,269 143	3,697 143
Germany.....	43	1,579 328	2,876 627
Gt. Britain and Ireland ( <i>see List of Cables, pp. 46 to 49</i> ).....	103	1,488 818	5,071 941
Greece.....	46	459 710	459 710
Holland.....	20	59 020	79 970
India, Indo-European Telegraph Department Government Administration ( <i>see List of Cables, pp. 48 and 49</i> ).....	89	1,911 650	1,911 650
Italy.....	38	1,027 100	1,091 300
Japan.....	11	55 498	103 368
New Caledonia.....	1	1 000	1 000
New Zealand.....	3	196 315	284 945
Norway.....	236	30 620	230 620
Queensland.....	13	162 350	165 050
Russia in Asia.....	1	70 017	70 017
Russia in Europe, and the Caucasus.....	8	212 680	236 240
Senegal.....	1	3 000	3 000
South Australia.....	5	49 900	49 900
Spain.....	3	135 530	135 530
Sweden.....	11	88 170	149 280
Turkey in Europe and Asia.....	10	331 660	334 660
	816	12,741 929	18,988 468

Government  
Private

## SUMMARY OF CABLES OWNED BY PRIVATE COMPANIES.

See List of Cables given on Pages 51 to 58.		No. of Cables.	Length of Cables in Nautical Miles.	Capital.
				£
I. Compagnie für Legung und Unterhaltung des Deutsch Norwegischen Kabels .....	3	248·04	73,640	
II. Direct Spanish Telegraph Company .....	4	707·73	143,724	
III. Spanish National Submarine Telegraph .....	7	1,294·659	335,090	
IV. West African Telegraph Company .....	12	3,015·42	531,090	
V. Black Sea Telegraph Company .....	1	346	130,000	
VI. Great Northern Telegraph Company .....	22	6,110	1,825,000	
VII. Eastern Telegraph Company .....	70	21,859·536	5,722,450	
VIII. Eastern and South African Telegraph Company .....	9	6,571	818,300	
IX. Eastern Extension, Australasia, and China Telegraph Company .....	22	12,958	3,329,400	
X. Anglo-American Telegraph Company .....	13	10,196·45	7,000,000	
XI. Direct United States Cable Company .....	2	3,101·33	1,214,200	
XII. Compagnie Française du Télégraphe de Paris à New- York .....	4	3,409·34	1,680,000	
XIII. American Telegraph and Cable Company .....	4	5,537	2,800,000	
XIV. Commercial Cable Company .....	6	6,937·61	2,000,000	
XV. Brazilian Submarine Telegraph Company .....	6	7,364	1,474,000	
XVI. African Direct Telegraph Company .....	7	2,743	475,000	
XVII. Cuba Submarine Telegraph Company .....	3	940	220,000	
XVIII. West India and Panama Telegraph Company .....	20	4,119	1,325,530	
XIX. Société Française des Télégraphes Sous-marins .....	5	980	220,000	
XX. Western and Brazilian Telegraph Company* .....	9	3,762	2,404,490	
XXI. River Plate Telegraph Company .....	1	32	55,500	
XXII. Mexican Telegraph Company .....	2	709	200,000	
XXIII. Central and South American Telegraph Company .....	9	3,178·11	1,000,000	
XXIV. West Coast of America Telegraph Company .....	7	1,698·72	450,000	
Total .....	248	107,817·945	35,427,414	

\*Including London Platino-Brazilian and Montevidéan and Brazilian Companies.

## GENERAL SUMMARY.

	No. of Cables.	Length in Nautical Miles.	
		Of Cables.	Of Con- ductors.
Government administrations .....	816	12,741·929	18,987 568
Private companies .....	247 1	107,817·945	108,589·905
	1,064	120,559·874	127,577·473

WORLD.

Telegraphie

STRATIONS.

Nautical Miles.

Of Con-  
ductors.

106·190  
 36·019  
 278·500  
 220·500  
 795·000  
 568·998  
 31·310  
 3,697·143  
 2,876·627  
 5,071·941  
 459·710  
 79·970  
 1,911·650  
 1,091·300  
 103·368  
 1·000  
 284·945  
 230·620  
 165·050  
 70·017  
 236·240  
 3·000  
 49·900  
 135·530  
 149·280  
 334·660  
 18,988·468



tions.

Length in Nautical  
Miles.Of  
Conductors.0' 481 441' 924  
8' 295 433' 1805' 356 101' 424  
2' 940 91' 749  
2' 884 91' 536  
1' 119 83' 357  
4' 444 451' 1085' 530 222' 120  
1' 845 247' 380  
4' 860 219' 4407' 236 201' 708  
8' 563 18' 563  
6' 260 48' 780  
1' 230 8' 610  
2' 327 6' 981  
7' 534 27' 534  
1' 104 1' 1042' 120 122' 120  
0' 595 20' 595  
2' 360 2' 360  
2' 360 2' 360  
1' 930 1' 930  
9' 848 9' 848  
3' 0 3' 0  
5' 883 65' 883  
2' 580 2' 580  
2' 735 2' 735  
1' 223 1' 223  
1' 644 1' 644  
2' 710 2' 7102' 553 32' 553  
0' 468 11' 468  
6' 510 16' 510  
0' 562 38' 248  
0' 778 0' 778  
6' 490 6' 490

8' 267 3,051' 454

## LANDING PLACES.

Date  
of  
Laying.No. of Conduc-  
tors in each  
Section.LENGTH IN NAUTICAL  
MILES.

Of Cables.

Of  
Conductors.

## Brought forward.....

83

1,008' 267

3,051' 454

Glenacardock Point, Cantyre, to the Isle of Islay.....	1871	1	16' 140	16' 140
Port Cranaig, Cantyre, to Arran.....	1885	3	3' 264	9' 792
Largs to Great Cumbrae.....	1887	1	1' 408	1' 408
Ardine Point to Ardbeg Point, Bute.....	1881	4	1' 358	5' 432
Mull to Coll.....	1888	1	9' 394	9' 394
Three to Coll.....	1888	1	2' 175	2' 175
Rugha Ben (Scotland) to Isle of Bute.....	1872	1	0' 443	0' 443
Renard Point (Ireland) to Valentia.....	1870	4	0' 444	1' 776

## E.—EASTERN COAST OF SCOTLAND.

Burghhead to Helmsdale.....	1885	3	26' 147	78' 441
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## F.—BAYS AND ESTUARIES.

Across the River Dart to Chain Ferry.....	1884	3	0' 295	0' 885
Across the River Dart to Chain Ferry.....	1888	4	0' 281	1' 124
Across the Port of Milford.....	1871	4	0' 591	2' 364
Across the Tees at Middlesbrough.....	.....	7	0' 160	1' 120
Across the Tees at Middlesbrough.....	.....	7	0' 160	1' 120
Across the Tees at Middlesbrough.....	.....	4	0' 160	0' 640
Across the Tees at Middlesbrough.....	.....	4	0' 160	0' 640
Across the Tees at Middlesbrough.....	.....	4	0' 160	0' 640
Across the Tees at Middlesbrough.....	.....	4	0' 160	0' 640
Across the Tees at Middlesbrough.....	.....	4	0' 160	0' 640
Across the Tees at Middlesbrough.....	.....	4	0' 160	0' 640
Across the Gloucester and Sharpness Canal at Sharpness.....	.....	4	0' 049	0' 196
Across the Gloucester and Sharpness Canal at Sharpness.....	.....	4	0' 049	0' 196
Across the Gloucester and Sharpness Canal at Sharpness.....	.....	4	0' 049	0' 196
Across the Gloucester and Sharpness Canal at Sharpness.....	.....	4	0' 049	0' 196
Across the Canal from Swansea Docks to Swansea.....	.....	4	0' 074	0' 296
Across the River Yar (Isle of Wight).....	.....	7	0' 071	0' 518
Across the River Medina, Isle of Wight.....	.....	4	0' 078	0' 312
Across the River Dee at Queensferry, near Chester.....	.....	4	0' 103	0' 412
Across the River Dee at Queensferry, near Chester.....	.....	4	0' 103	0' 412
Across Firth of Forth to Alloa.....	1886	1	0' 275	0' 275
Across Loch Etive at Connel Ferry.....	1882	1	0' 276	1' 270
Across Loch Etive at Connel Ferry.....	1884	4	0' 280	0' 120
Across Loch Eil at Corran Ferry.....	1885	1	1' 120	1' 120
Across Loch Creran at Shian Ferry.....	1882	1	0' 611	0' 611
Across Loch Creran at Shian Ferry.....	1882	1	0' 631	0' 631
Across Loch Creran at Shian Ferry.....	1888	4	0' 658	2' 632
Across Loch Leven at Ballachulich Ferry.....	.....	1	0' 196	0' 196
Across Loch Leven at Ballachulich Ferry.....	.....	1	0' 196	0' 196
Across Loch Leven at Ballachulich Ferry.....	1882	1	0' 177	0' 177
Across Loch Leven at Ballachulich Ferry.....	1882	1	0' 196	0' 196
Across Port of Waterford (Waterford Harbour, Ireland).....	1871	4	1' 353	5' 412
Across Port of Waterford (Waterford Harbour, Ireland).....	1871	4	1' 420	5' 680
Across Port of Waterford (Waterford Harbour, Ireland).....	1871	4	1' 510	6' 040
Across River Suir at Waterford Bridge (Ireland).....	.....	4	0' 147	0' 588
Across River Suir at Waterford Bridge (Ireland).....	.....	4	0' 147	0' 588
Across River Suir at Waterford Bridge (Ireland).....	.....	4	0' 147	0' 588
Across River Suir at Waterford Bridge (Ireland).....	.....	4	0' 147	0' 588
Across River Slaney at Wexford (Ireland).....	1880	7	0' 340	2' 380
Across River Slaney at Wexford (Ireland).....	1883	4	0' 343	1' 372
New Holland to Dairycoates, near Hull.....	1879	7	1' 396	9' 772
Devonport to Torpoint.....	.....	1	0' 377	0' 377
Devonport to Torpoint.....	.....	1	0' 359	0' 359
Granton (Firth of Forth) to Burntisland.....	1871	4	5' 071	20' 284
Granton (Firth of Forth) to Aberdeen.....	1882	7	4' 510	31' 570
Cove to Blairmore, Loch Long.....	1885	7	1' 550	10' 850
Cove to Blairmore, Loch Long.....	1885	7	1' 558	10' 906

## Carried forward.....

284

1,097' 248

3,305' 009

LANDING PLACES.	Date of Laying.	No. of Conductors in each Section.	LENGTH IN NAUTICAL MILES.	
			Of Cables.	Of Conductors.
Brought forward.....		284	1,097·248	3,305·000
North Queensferry to South Queensferry.....	1873	7	1·220	8·546
North Queensferry to South Queensferry.....	1884	7	1·400	9·800
North Queensferry to South Queensferry.....	1886	7	1·322	9·254
Strachur, Loch Fyne to Kenmure.....	1870	6	1·115	6·690
Strachur, Loch Fyne to Kenmure.....	1882	7	1·054	7·378
Row to Clachan Gairloch.....	1878	7	0·422	2·954
Row to Clachan Gairloch.....	1882	4	0·300	1·596
Row to Clachan Gairloch.....	1887	3	0·434	1·302
Whitepoint to Haulbowline (Ireland).....	1	1	0·259	0·259
Whitepoint to Haulbowline (Ireland).....	1	1	0·259	0·259
Haulbowline to Spike Island (Ireland).....	1	1	0·384	0·384
Cross Haven to West Seamount (Ireland).....	1	1	0·185	0·185
Foyle Road to Waterside, Londonderry.....	7	1	0·246	1·722
Foyle Road to Waterside, Londonderry.....	4	4	0·246	0·984
Total.....		347	1,106·193	3,356·316
<b>INTERNATIONAL SYSTEM.</b>				
<b>ANGLO-FRENCH CABLES.</b>				
Calais to Dover.....	1851	4	21·750	87·000
Boulogne to Dover.....	1859	6	20·250	121·500
Dieppe to Beachy Head.....	1861	6	62·000	372·000
Havre to Beachy Head.....	1870	6	69·500	417·000
Pirou, near Coutance, to Flicquet Bay (Jersey).....	1860	1	16·750	16·750
<b>ANGLO-BELGIAN CABLES.</b>				
Middelkerke, near Ostend, to Ramsgate.....	1853	6	61·500	369·000
Panne, near Furnes, to Dover.....	1866	4	47·000	188·000
<b>ANGLO-GERMAN CABLES.</b>				
Norderney to Lowestoft.....	1866	4	232·250	929·000
Greetsiel, near Emden, to Lowestoft, comprising the sections:				
<i>(Belonging to German Government)</i>				
Greetsiel to Borkum.....	1871	4		
Borkum to Lowestoft.....				
Greetsiel, near Emden, to Valentia (Ireland).....	1882	1		
Total.....		42	531·000	2,500·250
Deduct half length of cables owned by Great Britain in common with France and Belgium.....			149·375	785·625
Actual length of cables belonging to Great Britain.....			381·625	1,714·625
Total.....			1,488·818	5,071·941
<b>BRITISH INDIA.</b>				
<b>A.—INDO-EUROPEAN TELEGRAPH DEPARTMENT.</b>				
<i>Office: 49 and 50 Parliament Street, London.</i>				
<b>INTERNATIONAL SYSTEM.</b>				
Fao (Turkey in Asia) to Bushire (Persia).....	1864	1	152·0	152·0
Bushire to Jask (Persia).....	1869	1	502·0	502·0
Bushire to Jask (Persia).....	1885	1	519·0	519·0
Jask to Gwadur (Beluchistan).....	1864	1	267·0	267·0
Gwadur to Kurrachee.....	1864	1	274·0	274·0
Total.....		5	1,714·0	1,714·0

LENGTH IN NAUTICAL  
MILES.

Cables. Of  
Conductors.

3,305·000

8·540

9·800

9·254

6·690

7·378

2·954

1·596

1·302

0·259

0·259

0·384

0·185

0·246

0·384

3,356·316

87·000

121·500

372·000

417·000

16·750

369·000

188·000

929·000

2,500·250

785·625

1,714·625

5,071·941

152·0

502·0

519·0

267·0

274·0

152·0

502·0

519·0

267·0

274·0

1,714·0

# LANDING PLACES.

Date  
of  
Laying.

No. of Conduc-  
tors in each  
Section.

LENGTH IN NAUTICAL  
MILES.

Of Cables.

Of  
Conductors.

## B.—INDIAN ADMINISTRATION.

Headquarters: Calcutta and Simla.

### INTERNAL SYSTEM.

Across the River Myu.....	1871	1	2·44	2·44
Across the River Myu.....	1871	1	2·57	2·57
Across the River Brahmaputra to Dhubri.....	1874	1	4·60	4·60
Across the Ganges to Desgah Ghat.....	1886	1	2·60	2·60
Across the Ganges to Desgah Ghat.....	1888	1	2·0	2·0
Across the Ganges to Damukdia.....	1877	1	3·26	3·26
Across the Ganges to Damukdia.....	1881	1	3·85	3·85
Across the Ganges to Damukdia.....	1881	1	3·91	3·91
Across the Ganges to Damukdia.....	1883	1	3·46	3·46
Across the Ganges to Damukdia.....	1871	1	6·11	6·11
Across the Ganges to Manihari.....	1879	1	6·20	6·20
Across the River Pudda to Goalundo.....	1882	1	6·30	6·30
Across the River Pudda to Goalundo.....	1888	1	6·0	6·0
Across the River Pudda to Kurmachar.....	1888	1	6·01	6·01
Across the River Pudda to Kurmachar.....	1889	1	5·97	5·97
Across the River Pudda to Kurmachar.....	1889	1	6·0	6·0
Across the River Godavery to Rajahmundry.....	1877	1	2·60	2·60
Across the River Godavery to Rajahmundry.....	1877	1	2·60	2·60
Across the River Godavery to Rajahmundry.....	1885	1	2·60	2·60
Pagoda to Diamond Island.....	1877	1	8·58	8·58
Kihim (Bombay) to Kenney Island.....	1886	1	2·77	2·77
Across the Straits of Palk.....	1886	1	28·36	28·36
Across the Straits of Palk.....	1885	1	29·14	29·14
Sixty-one Cables of less than two miles in length.....		61	49·72	49·72

Total..... 84 197·65 197·65

## CANADIAN GOVERNMENT TELEGRAPHS.

Head Office: Montreal, Canada.

Gaspé to S.-W. Point, Anticosti Island.....	1880	1	44·27	44·27
Meat Cove (Cape Breton) to Old Harry (Magdalen Islands).....	1880	1	54·90	54·90
Grosse Isle to Bird Rock (Magdalen Islands).....	1880	1	18·26	18·26
Grindstone to All Right Island (Magdalen Islands).....	1880	1	0·14	0·14
Big Bras-d'Or Lake, Cape Breton (Nova Scotia).....	1880	1	0·50	0·50
St. Anne's Harbour, Cape Breton (Nova Scotia).....	1880	1	0·50	0·50
Ingonish Harbour, Cape Breton (Nova Scotia).....	1880	1	0·50	0·50
Cape Sable Island to Barrington (Nova Scotia).....	1880	1	1·75	1·75
Grand Manan to Campo Bello Island (New Brunswick).....	1880	1	7·23	7·23
Campo Bello to Eastport (State of Maine, U.S.).....	1880	1	1·90	1·90
Saguenay River (North Shore St. Lawrence River).....	1885	1	1·0	1·0
Bersimits to Manicouagan (North Shore St. Lawrence River).....	1883	1	12·0	12·0
Point Paradis to Godbout (North Shore St. Lawrence River).....	1883	1	26·0	26·0
Orleans Island to L'Ange Gardien (North Shore St. Lawrence River).....	1883	1	0·75	0·75
Saanich Arm to (British Columbia).....	1881	1	2·0	2·0
Vancouver Island to Gabriola Island (British Columbia).....	1881	1	1·0	1·0
Valdes Island to Port Gray (British Columbia).....	1881	1	21·30	21·30
Frazer River crossings (two cables).....	1881	1	1·0	1·0
Vancouver Island to Washington Ty. (U.S.).....	1884	1	17·0	17·0
Grosse Isle (Quarantine Station) to Orleans Island (North Shore St. Lawrence River).....	1885	1	6·50	6·50
Mainland to Amherst Island (Lake Ontario).....	1886	1	2·0	2·0

Total..... 21 220·50 220·50

LANDING PLACES.	Date of Laying.	No. of Conduc- tors in each Section.	LENGTH IN NAUTICAL MILES.	
			Of Cables.	Of Conductors
SOUTH AUSTRALIA.				
Normanville to Kingcote (Kangaroo Island) .....		1	38.50	38.50
Edithburg to Lighthouse (Trowbridge Island) .....		1	5.0	5.0
Cape Spencer to Althorpe Lighthouse. ....			3.20	3.20
Largs Bay .....			3.20	3.20
Total .....		2	49.90	49.90
QUEENSLAND.				
Cleveland to Peel Island .....		1	5.0	5.0
Peel Island to Dunwich .....		1	2.15	2.15
Dunwich to South Passage .....		1	12.20	12.20
Pialba to Woody Island .....		1	7.65	7.65
Woody Island to Whitecliffs .....		1	13.45	13.45
Rockhampton to Keppel Bay .....		1	77.35	77.35
Lytton to Lighthouse .....		1	5.0	5.0
Mackay to Flat-Top Island .....		1	5.0	5.0
Paterson to Thursday Island .....	1886	1	18.0	18.0
Cape Pallarenda to Magnetic Island .....	1886	1	2.75	2.75
Townsville to Magazine Island .....		7	0.45	3.15
Magazine Island to Cape Cleveland .....		1	11.10	11.10
Gatecombe Head and Facing Island .....	1886	1	2.25	2.25
Total .....		19	162.35	165.05
NEW ZEALAND.				
Wellington to Whites Bay (Cook Straits) .....	1866	3	44.315	132.945
Wellington to Whites Bay (Cook Straits) .....	1877	1	44.0	44.0
Wanganui to Blind Bay .....	1880	1	108.0	108.0
Total .....		5	196.315	284.945

I.—GR  
HHoyer  
I. Ho  
II. WII.—  
HeadThe Liz  
Barcelo  
Short C

III.—S

Cadiz (S  
Tejita (C  
Santa C  
Las Pal  
Garachic  
Santa C  
Saint Lo

IV.—V

A  
Dakar (S  
Bathurst  
Bolama t  
Bolama t  
Conakry  
Grand B  
Accra to  
Kotonou  
San Thor  
San Thor  
San Thor  
Principé

TH IN NAUTICAL  
MILES.

## II.—CABLES owned by Private Companies.

Cables.	Of Conductors.	LANDING PLACES.	Date of Laying.	No. of Conductors in each Section.	LENGTH IN NAUTICAL MILES.	
					Of Cables.	Of Conductors.
38.50	38.50					
5.0	5.0					
3.20	3.20					
3.20	3.20					
49.90	49.90					
5.0	5.0					
2.15	2.15					
12.20	12.20					
7.65	7.65					
13.45	13.45					
77.35	77.35					
5.0	5.0					
5.0	5.0					
18.0	18.0					
2.75	2.75					
0.45	3.15					
11.10	11.10					
2.25	2.25					
162.35	165.05					
44.315	132.945					
44.0	44.0					
108.0	108.0					
196.315	284.945					
I.—GESELLSCHAFT FÜR LEGUNG UND UTERHALTUNG DES DEUTSCH-NORWEGISCHEN UNTERSEEISCHEN KABELS.						
(GERMAN-NORWEGIAN TELEGRAPH COMPANY.)						
Head Office, 4, Werderstrasse, Berlin.						
Hoyer (Schleswig) to Arendal (Norway), including the sections:						
I. Hoyer to Westerland (Silt Island).....						
II. Westerland to Arendal.....						
			1870	3	248.04	744.12
II.—DIRECT SPANISH TELEGRAPH COMPANY.						
Head Office, Winchester House, Old Broad Street, London.						
The Lizard to Las Arenas, near Bilbao.....						
Barcelona to Marseilles.....						
Short Cables.....						
			1884	1	486.55	486.55
			1871	1	220.38	220.38
			1881	2	80	80
				4	707.73	707.73
III.—SPANISH NATIONAL SUBMARINE TELEGRAPH COMPANY.						
Head Office, 106 Cannon Street, London, E.C.						
Cadiz (Spain) to Santa Cruz de Tenerife.....						
Tejita (Teneriffe) to St. Louis de Senegal.....						
Santa Cruz de Tenerife to Las Palmas, Grand Canaries.....						
Las Palmas to Arrecife de Lanzarote.....						
Garachico de Tenerife to Santa Cruz de la Palmas.....						
Santa Cruz de Tenerife to Tejita (Teneriffe).....						
Saint Louis (Senegal), to Dakar (Senegal).....						
			1884	1	864.27	864.27
			1884	1	*	*
			1883	1	67.24	67.24
			1884	1	171.95	171.95
			1883	1	69.05	69.05
			1884	1	32.149	32.149
			1885	1	90	90
				7	1,294.659	1,294.659
IV.—WEST AFRICAN TELEGRAPH COMPANY.						
Head Office, 50 Old Broad Street, London, E.C.						
Dakar (Senegal) to Bathurst (British possession).....						
Bathurst to Bolama (Portuguese possession).....						
Bolama to Bissao.....						
Bolama to Conakry (French possession).....						
Conakry to Sierra Leone (English possession).....						
Grand Bassam (French possession) to Accra (English poss'n.).....						
Accra to Kotonou (Porto Novo) (French possession).....						
Kotonou to San Thome (Portuguese possession).....						
San Thome to the Gaboon (Freetown) (French possession).....						
San Thome to Island of Principe (Portuguese possession).....						
San Thome to Loanda.....						
Principe to Bonny.....						
			1886	1	106.60	106.60
			1886	1	363.77	363.77
			1885	1	42	42
			1885	1	238	238
			1886	1	70.70	70.70
			1886	1	241.30	241.30
			1886	1	215	215
			1886	1	486	486
			1886	1	176.50	176.50
			1886	1	126.25	126.25
			1886	1	759.00	759.00
			1889	1	189.70	189.70
				12	3,015.42	3,015.42

\*Worked by France.

LANDING PLACES.	Date of Laying.	No. of Conduc- tors in each Section.	LENGTH IN NAUTICAL MILES.	
			Of Cables.	Of Conduc- tors.
V.—BLACK SEA TELEGRAPH COMPANY.				
<i>Head Office, Winchester House, Old Broad Street, London, E.C.</i>				
Odessa (Russia) to Kilia, near Constantinople.....	1874	1	346	346
VI.—GREAT NORTHERN TELEGRAPH COMPANY.				
<i>Head Office, 28 Kongens Nytorv, Copenhagen. London Agency, 3 St. Helen's Place, Bishopsgate Street Within, E.C.</i>				
1st.—CABLES IN EUROPE.				
Peterhead (Scotland) to Ekersund (Norway).....	1869	1	267	267
Newbiggin (England) to Marstrand (Sweden) comprising the sections :				
I. Newbiggin to Arendal (Norway).....	1880	1	424	424
II. Arendal to Marstrand (Sweden).....	1880	1	98	98
Newbiggin to Hirtshals (Denmark).....	1873	1	420	420
Newbiggin to Sondervig (Denmark).....	1868	1	337	337
O/e, near Calais (France), to Fano (Denmark).....	1873	1	381	381
Hirtshals (Denmark) to Arendal (Norway).....	1867	1	70	70
Skagen (Denmark) to Marstrand (Sweden).....	1873	2	34	68
Moen (Denmark) to Island of Bornholm (Denmark).....	1868	2	78	156
Bornholm (Denmark) to Libau (Russia).....	1869	1	226	226
Grisslehamn (Sweden) to Nystad (Russia).....	1869	1	96	96
Grisslehamn (Sweden) to Nystad (Russia).....	1883	1	104	104
Grisslehamn (Sweden) to Island of Aaland (Russia).....	1877	1	28	28
Aaland (Russia) to Nystad (Russia).....	1876	1	57	57
2nd.—CABLES IN ASIA.				
Hongkong (China) to Amoy (China).....	1871	1	311	311
Amoy (China) to Woosung, near Shanghai (China), comprising the sections :				
I. Amoy to Gutzlaff (China).....	1871	1	590	590
II. Gutzlaff to Woosung.....	1871	1	57	57
Gutzlaff to Nagasaki (Japan).....	1871	1	427	427
Woosung, near Shanghai (China), to Nagasaki (Japan), com- prising the sections :				
I. Woosung to Gutzlaff.....	1883	3	57	171
II. Gutzlaff to Nagasaki.....	1883	1	416	416
Nagasaki (Japan) to Wladivostock (Russia in Asia).....	1871	1	766	766
Nagasaki (Japan) to Wladivostock.....	1883	1	753	753
Island of Kiu-siu (Yokuko) (Japan) to the Corea.....	1883	1	111	111
Kowloo (China) to Hong Kong.....	1884	2	2	2
		29	6,110	6,336
VII.—EASTERN TELEGRAPH COMPANY.				
<i>Head Office, Winchester House, Old Broad Street, London.</i>				
1st.—ANGLO-SPANISH-PORTUGUESE SYSTEM.				
Portoerurno, Land's End, to Carcavellos, near Lisbon (Portugal).....	1870	1	850	850
Portoerurno, Land's End, to Carcavellos, near Lisbon (Portugal).....	1887	1	892	892
Portoerurno to Vigo (Spain).....	1873	1	622	622
Vigo to Caminha (Portugal).....	1876	1	38	38
Vigo to Carcavellos, near Lisbon (Portugal).....	1873	1	259	259
Carcavellos to Gibraltar (No. 1).....	1870	1	383	383
Carcavellos to Gibraltar (No. 2).....	1887	1	337	337
Villa-Real de St. Antonio (Portugal) to Cadiz.....	1888	1	83	83
Cadiz to Gibraltar.....	1888	1	83	83
Carried forward.....		9	3,547	3,547

Cable (across)  
Belem (F)  
Belem (F)

Gibraltar to  
Gibraltar to  
Gibraltar to  
Marseilles (F)  
Marseilles (F)  
Bona to Mal  
Bona to Mal  
Malta to Tri  
Valetta (Mal  
Valetta (Mal  
Malta to Zar

Otranto (Ital  
Torre del Or

Trieste (Aus

Zante to Kat  
Kalauaki (M  
Kalamaki (M  
Corinth (Mor  
Corinth (Mor  
Patras (Mor  
Patras (Mor  
Zante to Cor  
Syra to Pir  
Patras Narro

Zante to Can  
Syra to Can  
Syra to Chic  
Syra to Chic

Canes to Re  
Rettimo to  
Candia to S  
Sitia to Rh  
I. Sitia to  
II. Scarp  
Chio to Tch  
Chio to Tch  
Chio to Ten  
Tenedos to  
Lemnos to  
Tenedos to  
Chanac to K  
Rumilie His

Malta to Al  
Malta to Al  
Sitia (Candi  
Larnaca (Cy

Of Conductors.	LANDING PLACES.	Date of Laying.	No. of Conductors in each Section.	LENGTH IN NAUTICAL MILES.	
				Of Cables.	Of Conductors.
	Brought forward .....		9	3,547	3,547
	Cable (across Tagus):				
	Belem (Portugal) (No. 1).....	1869	4	1	4
346	Belem (Portugal) (No. 2).....	1869	4	1	4
	2nd.—SYSTEM WEST OF MALTA.				
	Gibraltar to Tangier.....	1887	1	33	33
	Gibraltar to Malta (No. 1).....	1870	1	1,118	1,118
	Gibraltar to Malta (No. 2).....	1887	1	1,126	1,126
	Marseilles (France) to Bona (Algeria) (No. 1).....	1870	1	447	447
	Marseilles (France) to Bona (Algeria) (No. 2).....	1877	1	463	463
	Bons to Malta (No. 1).....	1870	1	381	381
	Bona to Malta (No. 2).....	1877	1	383	383
267	Malta to Tripoli (Africa).....	1882	1	204	204
	Valetta (Malta) to Alagrande, near Modica (Sicily).....	1859	1	60	60
424	Valetta (Malta) to Pozzallo, near Modica (Sicily).....	1869	1	54	54
98	Malta to Zante .....	1887	1	374	374
420	3rd.—ITALO-GREEK SYSTEM.				
337	Otranto (Italy) to Zante (Greece).....	1874	1	189.13	189.13
381	Torre del Orso, near Otranto, to Bay of Sidari (Corfu).....	1861	1	64	64
70	68				
156	4th.—AUSTRO-GREEK SYSTEM.				
226	Trieste (Austria) to Corfu.....	1882	1	503	503
96	5th.—GREEK SYSTEM.				
104	Zante to Katacolo (Morea).....	1884	1	26.57	26.57
28	Kalamaki (Morea) to Piræus.....	1884	1	30.54	30.54
57	Kalamaki (Morea) to Piræus.....	1889	1	31.22	31.22
	Corinth (Morea) to Patras (Morea) (No. 1).....	1884	1	68.16	67
	Corinth (Morea) to Patras (Morea) (No. 2).....	1889	1	75.45	75.45
	Patras (Morea) to Zante (No. 1).....	1884	1	57.26	57.26
	Patras (Morea) to Zante (No. 2).....	1887	1	56	56
311	Zante to Corfu.....	1871	1	175	175
	Syra to Piræus.....	1873	1	81.49	81.49
590	Patras Narrows.....	1887	1	1.20	1.20
57	6th.—TURKO-GREEK SYSTEM.				
427	Zante to Canea (Candia).....	1873	1	256	256
	Syra to Candia.....	1878	1	134	134
	Syra to Chio (No. 1).....	1873	1	96.22	96.22
171	Syra to Chio (No. 2).....	1885	1	90.267	90.267
416	7th.—TURKISH SYSTEM.				
766	Canea to Rettimo (Candia).....	1871	1	34	34
753	Rettimo to Candia.....	1871	1	42	42
111	Candia to Sitia (Candia).....	1871	1	56	56
2	Sitia to Rhodes, comprising the sections:				
6,336	I. Sitia to Scarpanto.....	1871	1	145	145
	II. Scarpanto to Rhodes.....	1871	1	10	10
	Chio to Tchesmé (Turkey in Asia).....	1888	1	8	8
	Chio to Tenedos.....	1878	1	98	98
	Tenedos to Lemnos.....	1884	1	58	58
	Lemnos to Salonica.....	1884	1	140	140
850	Tenedos to Chanac (Anatolia).....	1878	1	31	31
892	Chanac to Kartal (Bosphorus).....	1878	1	145	145
622	Rumilie Hissar to Anatolia Hissar (Bosphorus).....	1878	1	1	1
38	8th.—EGYPTO-EUROPEAN SYSTEM.				
259	Malta to Alexandria (Egypt) (No. 1).....	1868	1	927	927
383	Malta to Alexandria (Egypt) (No. 2).....	1870	1	914	914
337	Sitia (Candia) to Alexandria.....	1873	1	360	360
83	Larnaca (Cyprus) to Alexandria.....	1878	1	328	328
83	Carried forward.....		60	13,424.507	13,429.347

LANDING PLACES.	Date of Laying.	No. of Conductors in each Section.	LENGTH IN NAUTICAL MILES.	
			Of Cables.	Of Conductors.
Brought forward.....		60	13,424·507	13,429·347
9TH.—EGYPTIAN SYSTEM.				
Alexandria to Port Said.....	1882	1	155	155
10TH.—EGYPTO-INDIAN SYSTEM.				
Suez (Egypt) to Suakim (Soudan).....	1884	1	936	936
Suakim to Perim (Island).....	1884	1	597	597
Perim to Aden.....	1884	1	104	104
Perim to Obok.....	1889	1	52·029	52·029
Suez (Egypt) to Aden (No. 2).....	1870	1	1,444	1,444
Suez (Egypt) to Aden (No. 3).....	1876	1	1,403	1,403
Aden to Bombay (No. 1).....	1870	1	1,859	1,859
Aden to Bombay (No. 2).....	1877	1	1,885	1,885
VIII.—EASTERN AND SOUTH AFRICAN TELEGRAPH COMPANY.		69	21,859·536	21,864·376
<i>Head Office, Winchester House, 50, Old Broad Street, London, E.C.</i>				
Aden to Zanzibar.....	1879	1	1,909	1,909
Zanzibar to Mozambique (No. 1).....	1879	1	644	644
Zanzibar to Mozambique (No. 2).....	1885	1	686	686
Mozambique to Lourenço-Marques (Delagoa Bay).....	1879	1	970	970
Lourenço-Marques to Durban (Natal).....	1879	1	345	345
Cape Town to Port Nolloth.....	1889	1	433	433
Port Nolloth to Mossamedes.....	1889	1	1,052	1,052
Mossamedes to Benguela.....	1889	1	236	236
Benguela to Loanda.....	1889	1	296	296
IX.—EASTERN EXTENSION, AUSTRALASIA AND CHINA TELEGRAPH COMPANY.		9	6,571	6,571
<i>Head Office, Winchester House, 50, Old Broad Street, London, E.C.</i>				
Madras to Penang.....	1870	1	1,455	1,455
Rangoon to Penang.....	1877	1	864	864
Penang to Malacca.....	1879	1	275	275
Malacca to Singapore.....	1879	1	116	116
Penang to Singapore.....	1870	1	415	415
Singapore to Saigon (Cochin China).....	1871	1	637	637
Haiphong (Tonkin) to Hong Kong.....	1884	1	464	464
Saigon to Hong Kong (China).....	1871	1	983	983
Hong Kong to Macao.....	1884	1	38	38
Hong Kong to Cape Bolinao (Island of Luzon).....	1880	1	529	529
Singapore to Batavia (Java).....	1870	1	539	539
Singapore to Banjoewangie (Java).....	1879	1	920	920
Banjoewangie to Port Darwin (Australia) (No. 1).....	1871	1	1,137	1,137
Banjoewangie to Port Darwin (Australia) (No. 2).....	1879	1	1,133	1,133
Banjoewangie to Roë-vuck Bay (Australia).....	1889	1	890	890
Flinders, near Melbourne (Victoria), to Low Heads (Tasmania) (No. 1).....	1869	1	180	180
Flinders, near Melbourne (Victoria), to Low Heads (Tasmania) (No. 2).....	1885	1	180	180
Botany Bay, near Sydney (New South Wales), to Blind Bay, near Nelson (New Zealand).....	1876	1	1,283	1,283
Hong Kong to Foochow.....	1883	1	475	475
Foochow to Shanghai.....	1883	1	445	445
		20	12,958	12,958

X.—ANGLO

*Head O*Valentia (Irel)  
Valentia (Irel)  
Valentia (Irel)  
Minou, near I

Salcombe (En

3RD.—

Heart's Conte  
Heart's Conte  
New Brunswi  
Placentia to S  
St. Pierre to S  
Placentia to S  
Placentia to S  
St. Pierre to I

XI.—DIREC

*Head Off*Ballinskellig's  
Tor Bay to R

XII.—COM

*Head*Brest (France)  
St. Pierre to  
St. Pierre to  
Diolin, near

XIII.—WES

*London Ag*Sennen Cove  
Scotia), 1  
Sennen Cove,  
Scotia), 8Punta-Rassa  
tion  
I. Punta  
II. Key V  
Punta-Rassa  
tion  
I. Punta  
II. Key V

NAUTICAL RS.	LANDING PLACES.	Date of Laying.	No. of Conduc- tors in each Section.	LENGTH IN NAUTICAL MILES.	
				Of Cables.	Of Conduc- tors.
Of Conduc- tors.					
13,429·347	X.—ANGLO-AMERICAN TELEGRAPH COMPANY.				
	<i>Head Office, 26, Old Broad Street, London, E.C.</i>				
155	1ST.—TRANSATLANTIC SYSTEM.				
	Valentia (Ireland) to Heart's Content (Newfoundland).....	1873	1	1,885·97	1,885·97
936	Valentia (Ireland) to Heart's Content (Newfoundland).....	1874	1	1,846·13	1,846·13
597	Valentia (Ireland) to Heart's Content (Newfoundland).....	1880	1	1,890·49	1,890·49
104	Minou, near Brest (France), to St. Pierre.....	1869	1	2,685·24	2,685·24
52·029	2ND.—EUROPEAN COMMUNICATION.				
1,444	Salcombe (England) to Brignogan (France).....	1870	1	101	101
1,403	3RD.—COMMUNICATION ON AMERICAN COASTS.				
1,859	Heart's Content to Placentia (Newfoundland).....	1873	1	61·80	61·80
1,885	Heart's Content to Placentia (Newfoundland).....	1880	1	61	61
21,864·376	New Brunswick to Prince Edward's Isle.....	1856	1	12	12
	Placentia to St. Pierre.....	1880	3	111·96	335·88
1,909	St. Pierre to Sydney (Cape Breton).....	1880	3	187·11	561·33
644	Placentia to Sydney.....	1873	1	314·12	314·12
686	Placentia to Sydney.....	1873	1	280·51	280·51
970	St. Pierre to Duxbury, near Boston (Massachusetts).....	1869	1	759·12	759·12
345	XI.—DIRECT UNITED STATES CABLE COMPANY.				
433	<i>Head Office, Winchester House, 50, Old Broad Street, London, E.C.</i>				
1,052	Ballinskellig's Bay (Ireland) to Halifax.....	74·75	1	2,565·24	2,565·24
236	Tor Bay to Rye Beach (New Hampshire, U.S.).....	1875	1	536·09	536·09
296	XII.—COMPAGNIE FRANÇAISE DU TÉLÉGRAPHE DE PARIS À NEW YORK.				
6,571	<i>Head Office, 53 bis, Rue de Chateaudun, Paris.</i>				
	Brest (France) to St. Pierre.....	1879	1	2,242·37	2,242·37
1,455	St. Pierre to Cape Cod (Massachusetts).....	1879	1	827·30	827·30
864	St. Pierre to Louisbourg (Nova Scotia).....	1879	1	188·77	188·77
275	Deolin, near Brest (France), to Porcella Cove (Cornwall).....	1880	1	150·90	150·90
116	XIII.—WESTERN UNION TELEGRAPH COMPANY.				
415	<i>Head Office, Broadway, New York.</i>				
637	<i>London Agency, 213, Gresham House, Old Broad Street, E.C.</i>				
464	1ST.—TRANSATLANTIC SYSTEM.				
983	Sennen Cove, near Penzance, to Dover Bay, near Canzo (Nova Scotia), Northern cable.....	1881	1	2,531	2,531
38	Sennen Cove, near Penzance, to Dover Bay, near Canzo (Nova Scotia), Southern cable.....	1882	1	2,576	2,576
529	2ND.—GULF OF MEXICO SYSTEM.				
539	Punta-Rassa (Florida) to Havana (Cuba), comprising the sec- tions :				
920	I. Punta-Rassa to Key West.....	1868	1	215	215
1,137	II. Key West to Havana.....				
1,133	Punta-Rassa (Florida) to Havana (Cuba), comprising the sec- tions :				
890	I. Punta-Rassa to Key West.....	1873	1	215	215
180	II. Key West to Havana.....				
180					
1,283					
475					
445					
12,958			4	5,537	5,537

LANDING PLACES.	Date of Laying.	No. of Conduct- ors in each Sec- tion.	LENGTH IN NAUTICAL MILES.	
			Of Cables.	Of Conductors.
XIV.—THE COMMERCIAL CABLE COMPANY.				
1, Broadway, New York; 26 Avenue de l'Opéra, Paris; 23 Royal Exchange, London, E.C.				
1ST.—COMMUNICATION IN EUROPE.				
Havre to Waterville (Ireland).....	1885	1	510·15	510·15
Waterville to Weston-super-Mare (near Bristol). . . . .	1885	2	328·88	657·76
2ND.—TRANSATLANTIC SYSTEM.				
Waterville (Ireland) to Canso (Nova Scotia).....	1884	1	2,350·36	2,350·36
Waterville (Ireland) to Canso (Nova Scotia).....	1884	1	2,388·35	2,388·35
3RD.—COMMUNICATIONS ON THE AMERICAN COAST.				
Canso (Nova Scotia) to New York . . . . .	1884	1	840·93	840·93
Canso to Rockport (near Boston).....	1885	2	518·94	1 037·88
		8	6,937·61	7,785·43
XV.—BRAZILIAN SUBMARINE TELEGRAPH COM- PANY.				
Head Office, Winchester House, Old Broad Street, London, E.C.				
Carcavellos, near Lisbon (Portugal), to Madeira. . . . .	1874	1	626	626
Carcavellos, near Lisbon (Portugal), to Madeira. . . . .	1882	1	627	627
Madeira to St. Vincent (Cape Verde Island).....	1874	1	1,209	1,209
Madeira to St. Vincent (Cape Verde Island).....	1884	1	1,163	1,168
St. Vincent to Pernambuco (Brazil).....	1874	1	1,872	1,872
St. Vincent to Pernambuco (Brazil). . . . .	1884	1	1,862	1,862
		6	7,364	7,364
XVI.—AFRICAN DIRECT TELEGRAPH COMPANY.				
Head Office, Winchester House, Old Broad Street, London, E.C.				
St. Vincent to Santiago (Cape Verde Islands).....	1884	1	193	193
Santiago to Bathurst (British possession).....	1886	1	471	471
Bathurst to Sierra Leone.....	1886	1	463	463
Sierra Leone to Accra.....	1886	1	1,020	1,020
Accra to Lagos.....	1886	1	259	259
Lagos to Brass.....	1886	1	269	269
Brass to Bonny.....	1886	1	68	68
		7	2,743	2,743
XVII.—CUBA SUBMARINE TELEGRAPH COM- PANY.				
Head Office, 50 Old Broad Street, London, E.C.				
Batabano (Cuba) to Cienfuegos (Cuba).....	1870	1	120	120
Cienfuegos to Santiago (Cuba).....	1870	1	400	400
Cienfuegos to Santiago (Cuba).....	1875	1	420	420
		3	940	940
XVIII.—WEST INDIA AND PANAMA TELEGRAPH COMPANY.				
Head Office, Dashwood House, 9 New Broad St., London, E.C.				
Santiago (Cuba) to Holland Bay (Jamaica).....	1870	1	160	160
Santiago (Cuba) to Holland Bay (Jamaica).....	1878	1	146	146
Kingston (Jamaica) to Colon (Isthmus of Panama).....	1870	1	630	630
Holland Bay to St. Juan (Porto Rico).....	1870	1	683	683
St. Juan to St. Thomas.....	1871	1	72	72
Carried forward . . . . .		5	1,691	1,691

Holland Bay  
Ponce to St.  
St. Croix to  
St. Thomas  
St. Kitts to  
Antigua to  
Basse-Terre  
Dominica to  
Martinique  
St. Lucia to  
St. Vincent  
St. Vincent  
Grenada to  
St. Croix to  
Trinidad to

XIX.—SOC

Aguadores  
Caimanera  
Mole-St.-Ni  
St. Domingo  
Curaçao to

XX.—WE

Head O

Para (Brazil)  
Maranhão  
Ceara to Pe  
Pernambuco  
Bahia to Ri  
Rio de Jane  
Santos to S  
St. Catarina  
Rio Grande  
section  
I. Rio G  
II. Chuy  
III. Mald

XXI.—F

Montevideo

XXII

Ha

Galveston  
Tampico to

NAUTICAL MILES.	Of Conductors.	LANDING PLACES.	Date of Laying.	No. of Conductors in each Section.	LENGTH IN NAUTICAL MILES.	
					Of Cables.	Of Conductors.
		Brought forward.....		5	1,691	1,691
		Holland Bay to Ponce (Porto Rico).....	1874	1	647	647
		Ponce to St. Croix.....	1875	1	135	135
		St. Croix to St. Thomas.....	1875	1	48	48
		St. Thomas to St. Kitts.....	1871	1	161	161
		St. Kitts to Antigua.....	1871	1	49	49
510.15		Antigua to Bassé-Terre (Guadaloupe).....	1871	1	73	73
657.76		Bassé-Terre to Dominica.....	1871	1	51	51
		Dominica to Martinique.....	1871	1	40	40
		Martinique to St. Lucia.....	1871	1	55	55
		St. Lucia to St. Vincent.....	1871	1	58	58
2,350.36		St. Vincent to Barbadoes.....	1871	1	99	99
2,388.35		St. Vincent to Grenada.....	1871	1	84	84
		Grenada to Trinidad.....	1871	1	89	89
		St. Croix to Port of Spain (Trinidad).....	1875	1	541	541
		Trinidad to Demerara (English Guinea).....	1871	1	298	298
840.93						
1,037.88						
7,785.43				20	4,119	4,119
		XIX.—SOCIÉTÉ FRANÇAISE DES TÉLÉGRAPHES SOUS-MARINS.				
		<i>Head Office, 32 Rue Caumartin, Paris.</i>				
		Aguadores (near Santiago de Cuba) to Caimanera (Cuba).....	1888	1	50	50
626		Caimanera (Cuba) to Môle-St.-Nicolas (Hayti).....	1888	1	126	126
627		Môle-St.-Nicolas (Hayti) to Puerto-Plata (Dominique).....	1888	1	188	188
1,209		St. Domingue (Dominique) to Curaçao.....	1888	1	453	453
1,168		Curaçao to La Guayra (Venezuela).....	1888	1	163	163
1,872						
1,862						
7,364				5	980	980
		XX.—WESTERN AND BRAZILIAN TELEGRAPH COMPANY.				
		<i>Head Office, 19 Great Winchester Street, London, E.C.</i>				
		Para (Brazil) to Maranham (Brazil).....	1873	1	381	381
193		Maranham to Ceara (Brazil).....	1873	1	406	406
471		Ceara to Pernambuco (Brazil).....	1873	1	476	476
463		Pernambuco to Bahia.....	1873	1	396	396
1,020		Bahia to Rio de Janeiro.....	1873	1	837	837
259		Rio de Janeiro to Santos.....	1874	1	230	230
269		Santos to St. Catarina (Brazil).....	1874	1	292	292
68		St. Catarina to Rio Grande do Sul (Brazil).....	1874	1	394	394
2,743		Rio Grande do Sul to Montevideo (Uruguay), comprising the sections:				
		I. Rio Grande do Sul to Chuy (Brazil).....	1875	1	350	350
		II. Chuy to Maldonado (Uruguay).....				
		III. Maldonado to Montevideo (Uruguay).....				
				9	3,762	3,762
		XXI.—RIVER PLATE TELEGRAPH COMPANY.				
		<i>Head Office, Montevideo.</i>				
		Montevideo to Buenos Ayres (Argentine Republic).....		2	32	64
		XXII.—MEXICAN TELEGRAPH COMPANY.				
		<i>Head Office, 37 and 39, Wall Street, New York.</i>				
		Galveston (Texas) to Tampico (Mexico).....	1882	1	490	490
160		Tampico to Vera Cruz (Mexico).....	1880	1	219	219
146						
630						
683						
72						
1,691				2	709	709

LANDING PLACES.	Date of Laying.	No. of Conductors in each Section.	LENGTH IN NAUTICAL MILES.	
			Of Cables.	Of Conductors.
XXIII.—CENTRAL AND SOUTH AMERICAN TELEGRAPH COMPANY.				
<i>Head Office, 37 and 39 Wall Street, New York.</i>				
1ST ATLANTIC SYSTEM.				
Vera Cruz (Mexico) to Goatzacoalcos (Mexico).....	1881	1	129.50	129.50
2ND PACIFIC SYSTEM.				
Salina Cruz (Mexico) to Libertad (Salvador).....	1882	1	434.50	434.50
Libertad to San Juan del Sur (Nicaragua).....	1882	1	269.36	269.36
San Juan del Sur to San Pedro Gonzalez (Pearl Islands).....	1882	1	671.19	671.19
San Pedro Gonzalez to Panama.....	1882	1	48.37	48.37
San Pedro Gonzalez to Buenaventura (Colombia).....	1882	1	357.14	357.14
Buenaventura to St. Elena (Equator).....	1882	1	484.68	484.68
St. Elena to Payta (Peru).....	1882	1	230.37	230.37
Payta to Chorillos, near Callao-Lima (Peru).....	1882	1	553	553
		9	3,178.11	3,178.11
XXIV.—WEST COAST OF AMERICA TELEGRAPH COMPANY.				
<i>Head Office, Winchester House, 50 Old Broad Street, E.C.</i> <i>General Agency, Plaza de Micho, Lima.</i>				
Chorillos, near Callao-Lima (Peru), to Mollendo (Peru).....	1875	1	510.08	510.08
Mollendo to Arica (Peru).....	1875	1	146.42	146.42
Arica to Iquique (Peru).....	1875	1	128.35	128.35
Iquique to Antofagasta (Bolivia).....	1875	1	250.50	250.50
Antofagasta to Caldera (Chili).....	1875	1	229	229
Caldera to Serena, near Coquimbo (Chili).....	1876	1	215.34	215.34
Serena to Valparaiso (Chili).....	1876	1	219.03	219.03
		7	1,698.72	1,698.72

## LAND-LINE WIRES OF THE WORLD.

Country.	Length.	Value.
	Miles.	£
Europe.....	1,002,794	25,069,850
North America—		
Western Union.....	616,130	17,240,000
Other lines.....	107,347	5,367,350
South and Central America.....	62,517	3,125,850
Australasia.....	71,717	3,585,850
Asia.....	128,928	6,446,400
Africa.....	12,069	648,450
Total.....	2,002,402	61,483,750

1. Quebec and  
ing 3,00  
2. St. John, N  
and Sh  
3. Halifax, Q  
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4. Boston, Ch  
3,432 S

5. Gibraltar,  
6. do

7. Bermuda  
North

Liverpool to  
Louisbourg  
Quebec to V  
Vancouver

Liverpool to  
Louisbourg  
Vancouver

Liverpool to  
Halifax to  
Vancouver

Liverpool to  
Halifax to  
Vancouver

Liverpool to  
St. John to  
Vancouver

## COMPARATIVE Distances—Liverpool to Yokohama.

Of conductors.	Routes.	Geo- graphical Miles.
	<i>Canada—North America.</i>	
	1. Quebec and Vancouver—Present summer route, the shortest across the continent, comprising 3,054 S. M., or 2,649 G. M. of railway, not stopping at Montreal.....	9,673
	2. St. John, Montreal and Vancouver—By short line, <i>via</i> Mattawamkeag, State of Maine and Sherbrooke, comprising 3,387 S. M., or 2,938 G. M. of railway.....	10,001
129 50	3. Halifax, Quebec and Vancouver—By the Intercolonial and Canadian Pacific Railways. Present winter route, comprising 3,732 S.M.=3,237 G. M. of railway direct.....	10,100
	<i>United States—North America.</i>	
434 50 269 36 671 19 48 37 357 14 484 68 230 37 553	4. Boston, Chicago and San Francisco—The shortest route of the United States, comprising 3,432 S.M.=2,977 G.M. of railway.....	10,342
	<i>Europe and Asia.</i>	
	5. Gibraltar, Suez Canal, Strait of Malacca and Singapore.....	11,043
	6. do do and Strait of Sunda.....	11,029
	<i>Central America.</i>	
3,178 11	7. Bermuda and Jamaica on North Atlantic Ocean and Caribbean Sea, Panama Canal and North Pacific Ocean.....	12,814

## LIVERPOOL, England, to Yokohama, Japan.

	Routes.	Geo- graphical Miles.	Statute Miles.
	<i>Louisbourg and Quebec.</i>		
	Liverpool to Louisbourg, C.B.—Atlantic Ocean.....	2,350	2,709
	Louisbourg to Quebec <i>via</i> Intercolonial Railway.....	714	823
	Quebec to Vancouver direct <i>via</i> Canadian Pacific Railway.....	2,649	3,054
	Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
		10,076	11,615
	<i>Louisbourg and Montreal, <i>via</i> Short Line.</i>		
	Liverpool to Louisbourg—Atlantic Ocean.....	2,350	2,709
	Louisbourg to Vancouver <i>via</i> St. John and Sherbrooke.....	3,300	3,804
	Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
		10,013	11,542
	<i>Halifax and Quebec.</i>		
	Liverpool to Halifax—Atlantic Ocean.....	2,500	2,882
	Halifax to Vancouver direct—Canadian Pacific Railway.....	3,237	3,732
	Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
		10,100	11,643
	<i>Halifax and Montreal <i>via</i> Short Line.</i>		
	Liverpool to Halifax—Atlantic Ocean.....	2,500	2,882
	Halifax to Vancouver <i>via</i> St. John and Sherbrooke.....	3,179	3,664
	Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
		10,042	11,575
	<i>St. John and Quebec.</i>		
	Liverpool to St. John, N.B.—Atlantic Ocean.....	2,700	3,112
	St. John to Vancouver <i>via</i> Moncton—Intercolonial Railway.....	3,153	3,635
	Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
		10,216	11,776

LIVERPOOL, England, to Yokohama, Japan—*Concluded.*

Routes.	Geo- graphical Miles.	Statute Miles.
<i>St. John and Montreal via Short Line.</i>		
Liverpool to St. John, N.B.—Atlantic Ocean.....	2,700	3,112
St. John to Vancouver via Vanceboro and Sherbrooke.....	2,938	3,387
Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
	10,001	11,528
<i>St. Andrews and Quebec via Temiscouata.</i>		
Liverpool to St. Andrews, N.B.—Atlantic Ocean.....	2,680	3,089
St. Andrews, via Edmunston and Temiscouata Railway, Intercolonial Railway and Canadian Pacific Railway, to Vancouver.....	3,007	3,467
Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
	10,050	11,585
<i>St. Andrews and Montreal via Short Line.</i>		
Liverpool to St. Andrews, N.B.—Atlantic Ocean.....	2,680	3,089
St. Andrews to Vancouver via Vanceboro and Sherbrooke.....	2,905	3,349
Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
	9,948	11,467
<i>Quebec and Vancouver.</i>		
Liverpool to Quebec via Belle-Ile—Atlantic Ocean.....	2,661	3,067
Quebec to Vancouver, direct—Canadian Pacific Railway.....	2,649	3,054
Vancouver to Yokohama—Pacific Ocean.....	4,363	5,029
Total via Strait of Belle-Ile.....	9,673	11,150
ADD—If route is by Cape Race, Newfoundland.....	158	182
Total via Cape Race.....	9,831	11,332

## DETAILS.

Louisbourg to Quebec—Py Intercolonial Railway.....	823
Halifax do do.....	678
St. John do do.....	561
St. Andrews do By Temiscouata Railway.....	413
Quebec to Montreal—By Canadian Pacific Railway.....	172
Louisbourg do By Short Line Railway.....	898
Halifax do do.....	758
St. John do do.....	481
St. Andrews do do.....	443
Montreal to Ottawa—By Canadian Pacific Railway.....	120
do Winnipeg do.....	1,424
Winnipeg to Vancouver do.....	1,482
Quebec to Winnipeg via Montreal.....	1,596
do do via St. Martin, direct.....	1,572
Quebec to Vancouver do.....	3,054
do do via Montreal.....	3,078
Sydney, Cape Breton to Quebec—By Intercolonial Railway.....	832
do to Montreal via Moncton, St. John, Vanceboro and Sherbrooke—By Short Line across State of Maine, U. S.....	907

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COMPARATIVE Statement of Distances between Liverpool, England, and Yokohama, Japan, on the respective Routes indicated through Canada *via* Port Moody and Vancouver.

Statute Miles.	Routes.	Geo-graphical Miles.	Statute Miles.
3,112	1. Quebec, Ottawa and Vancouver <i>via</i> Strait of Belle-Ile.....	9,673	11,150
3,387	2. do do Cape Race.....	9,831	11,332
5,029	3. Quebec, Ottawa, Owen Sound, Lakes Huron and Superior and Vancouver <i>via</i> Cape Race.....	9,846	11,350
11,528	4. Chatham, Quebec, Ottawa and Vancouver <i>via</i> Cape Race—Projected.....	9,847	11,351
3,089	5. St. Andrew's, Mattawamkeag, Sherbrooke, Montreal, Ottawa and Vancouver.....	9,948	11,467
3,467	6. St. John do do do ..	10,001	11,528
5,029	7. Louisbourg do do do ..	10,013	11,542
11,585	8. Halifax, St. John do do do ..	10,042	11,575
3,089	9. St. Andrew's, Edmundston, Rivière du Loup, Quebec, Ottawa and Vancouver.....	10,050	11,585
3,349	10. Louisbourg, Quebec, Montreal, Ottawa and Vancouver.....	10,076	11,615
5,029	12. Quebec, Montreal, Toronto, Detroit, Chicago, St. Paul, Winnipeg and Vancouver <i>via</i> Cape Race.....	10,076	11,615
11,467	13. Halifax, Quebec, Montreal, Ottawa and Vancouver.....	10,100	11,643
3,067	14. St. John, Moncton, Quebec, Montreal, Ottawa and Vancouver.....	10,216	11,776
3,054			
5,029			
11,150			
182			
11,332			

COMPARATIVE STATEMENT of Distances between Liverpool, England and Yokohama, Japan, on the respective Routes indicated through the United States *via* San Francisco.

Statute Miles.	Routes.	Geo-graphical Miles.	Statute Miles.
823	1. Boston, Chicago and San Francisco.....	10,342	11,921
678	2. Portland, Niagara Falls, Chicago and San Francisco.....	10,404	11,992
581	3. Portland, Montreal, Chicago and San Francisco.....	10,416	12,006
413	4. New York, Chicago and San Francisco.....	10,493	12,095
172	5. New York, Indianapolis, St. Louis and San Francisco.....	10,600	12,219
898	6. New York, Cincinnati, St. Louis and San Francisco.....	10,637	12,262
758	7. Boston, St. Louis and San Francisco.....	10,641	12,266
481	8. Philadelphia, Chicago and San Francisco.....	10,683	12,314
443	9. Philadelphia, Indianapolis, St. Louis and San Francisco.....	10,703	12,337
120	10. Philadelphia, Cincinnati, St. Louis and San Francisco.....	10,740	12,380
1,424	11. Richmond, Louisville, St. Louis and San Francisco.....	10,757	12,397
1,482	12. Baltimore, Chicago and San Francisco.....	10,766	12,410
1,596	13. Richmond, Cincinnati, St. Louis and San Francisco.....	10,826	12,478
1,572	14. Baltimore, Cincinnati, St. Louis and San Francisco.....	10,830	12,484
3,054	15. Richmond, New Orleans and San Francisco.....	10,845	12,499
3,078	16. Baltimore, Indianapolis, St. Louis and San Francisco.....	10,861	12,519
832	17. New Orleans and San Francisco.....	11,339	13,069
907			

NOTE.—The longest route across Canada is shorter than the shortest route across the United States.—G. F. B.

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PART III.

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PROGRESSIVE DISCOVERIES

AND

FOUNDATIONS OF VARIOUS CITIES, TRADING STATIONS, &c., IN  
NORTH AMERICA, COLONIZED BY FRANCE  
AND GREAT BRITAIN.

## PROGRESSIVE DISCOVERIES.

Iceland, Greenland, Labrador, Newfoundland, North America and Canada.

Localities.	Discoverers.	Dates of Discovery.
Iceland (Thule).....	Pytheas, a Geographer and Navigator, born at Marseilles, France.....	Before Christ. 340
do (Snowland).....	Norsemen, under Negan Viking Naddodd.....	After Christ. 520
do (Gardar's Holm).....	Gardar, a Swede—re-discovered it.....	864
Greenland.....	Gunnbjorn, son of Ulf Krage, of Iceland.....	876
do.....	Explored by Eirik (Erick) the Red, from Norway and Iceland.....	984
Coast of Labrador and Newfoundland (Helluland) land of broad stones, whence they proceeded to Markland, Nova Scotia (Land of Woods), Vinland, Massachusetts, United States.....	According to Northern Sagas, first seen by Biorn (Biarni) and 14 years later by Eirik the Red and Leif, his son, whom Humboldt calls "The Discoverer of the New World".....	
America.....	Christopher Columbus.....	1000
Labrador, Newfoundland, Cape Breton and Coast of United States.....	John Cabot and Sébastien, his son, from Venice. Cape North, Cape Breton, first seen.....	Oct. 12, 1492
Hudson's Bay.....	Sébastien Cabot is reported to have discovered this bay before Hudson.....	June 24, 1497
Newfoundland, Greenland, Labrador.....	Gaspard Corté Réal, Portuguese Navigator.....	1498
Newfoundland, Labrador, Canada.....	Jacques Cartier—Isle of Birds—first seen.....	June 25, 1534
Stadacona (Quebec).....	do.....	Sept. 14, 1535
Hochelaga (Montreal).....	do.....	Oct. 2, 1535
Tadoussac, Outlet River Saguenay.....	Samuel De Champlain and Pontgravé.....	May 24, 1603
Lake Champlain, or "Lac des Iroquois".....	do.....	July 1600
Hudson's Bay.....	Henry Hudson. (See hereafter).....	1609
Ottawa River, or "Rivière des Algonquins".....	Samuel De Champlain.....	June 1613
Lake Nipissing.....	do.....	1615
Lake Huron (Mer Douce).....	do.....	1615
Lake Ontario, or "Frontenac".....	do.....	1615
Lake Michigan, or "Lac des Illinois".....	Jean Nicolet.....	1634
Lake Erie.....	Jesuit Fathers, Pierre-Joseph-Marie Chaumonot and Jean De Brébeuf.....	1640
Lake George, or "Lac du St. Sacrament," above Lake Champlain.....	Jesuit Father, Isaac Jogues.....	1646
St. John, "Pickouagani".....	Jesuit Father, Jean De Quen.....	July 16, 1647
Lake Superior, or "Lac de Tracy".....	French Traders.....	1659
Hudson's Bay.....	Henry Hudson. (Some authors pretend that Sébastien, son of John Cabot, discovered this Bay towards 1498).....	1610
	Jean Bourdon took possession of it for France.....	1656
	Pierre Le Moyne d'Iberville took possession of Albany Fort, Moose Factory and Rupert.....	1685
	And of York Factory.....	1694
Behring Strait. See below.....	Deschnew, a Russian sailed through before Behring.....	1648
James Bay, Head of Hudson's Bay.....	Jesuit Father Charles Albanel.....	June 28, 1672
Mississippi River or "Fleuve de Colbert".....	Louis Jolliet and Jesuit Father Jacques Marquette.....	do 17, 1673
Niagara Falls.....	Rev. Father Recollet, Louis Hennepin who accompanied René-Robert Cavelier de La Salle.....	1678
Mississippi River, descended to the Sea, by.....	R. R. Cavelier de La Salle.....	April 9, 1683
Behring Strait—Re-discovered.....	Behring, a Danish navigator employed by Peter the Great.....	1729
Rocky Mountains reached.....	Pierre Gaultier de Varennes de La Vérandrye.....	Jan. 12, 1743
Mackenzie River to Polar Sea.....	Sir A. Mackenzie descended to Whale Island.....	July 15, 1789
Vancouver Island, circumnavigated.....	Vancouver, an English navigator.....	1790
Rocky Mountains crossed, <i>via</i> Peace,		

Fraser and  
Polar Sea, fr  
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Strait.....Polar Sea, fr  
West, to E

East, to M

## FOUNDATIONS

Port Royal,  
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Quebec.....  
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Ville-Marie  
Fort Richeli  
Cataracoui (I  
Ponchartrai  
Louisbourg,New Orleans  
Fort La Reine  
La Présentat  
Chibouctou (I  
Charlottetow  
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Prescott.....  
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## Progressive Discoveries—Concluded.

## Canada.

Dates of Discovery.	Localities.	Discoverers.	Dates of Discovery.
	Fraser and Salmon Rivers.....	Sir Alexander Mackenzie, of the North-West Co..	May 9, to July 22, 1793
	Polar Sea, from Copper-Mine River to Cape Turnagain, West end, Dease Strait.....	Sir John Franklin and Dr. Richardson during first Expedition.....	July 18, to Aug. 18, 1821
	Polar Sea, from Mouth of Mackenzie West, to Point Beechey, Alaska.....	Franklin and Lieut. Back, his first assistant, in two boats.....	July 8, to Aug. 17, 1826
	East, to Mouth of Copper-Mine River	Dr. Richardson with two boats sent by Franklin..	July 8, to Aug. 8, 1826

## FOUNDATIONS of Cities, &amp;c., in "La Nouvelle-France" and in British North America.

	Localities.	Founders.	Dates of Foundation.
	Port Royal, on north side of Annapolis Basin opposite Goat Island.....	M. De Monts (site granted to M. de Poutrincourt).	1605
	Quebec.....	Samuel de Champlain.....	July 3, 1608
	St. John's, Newfoundland.....	Whitbourne.....	1613
	Three Rivers.....	Lavolette.....	July 4, 1634
	Port Royal (Annapolis), site of present town on south side of Annapolis Basin	D'Aulnay de Charnisay (Charles de Menou).....	1636-45
	Ville-Marie (Montreal).....	Paul de Chomedey de Maisonneuve.....	May 18, 1642
	Fort Richelieu (Sorel).....	Charles-Jacques Huault de Montmagny.....	Aug. 13, 1642
	Cataracoui (Kingston).....	Louis de Buade, comte de Palluau et de Frontenac	June 13, 1673
	Pontchartrain (Detroit).....	La Mothe Cadillac, under de Callières.....	July 24, 1701
	Louisbourg, Cap Breton.....	French from Placentia, Newfoundland (afterwards by M. De Costebelle, who expended 30 millions of francs to fortify it).....	Aug. 1713
	New Orleans.....	Le Moyne de Bienville.....	1718
	Fort La Reine—Fort Garry—Winnipeg	Pierre Gaultier de Varennes de la Verandrye.....	1737
	La Présentation (Ogdensburg).....	Abbé Picquet.....	1748
	Chibouctou (Halifax).....	Lord Cornwallis.....	June 30, 1749
	Charlottetown, Prince Edward Island, formerly visited by Cabot in 1497, and named Ile St. Jean by Champlain....	Morris and Deschamps. The Island was named "Prince Edward" in 1799. It was first settled by Acadians after 1715, and was definitely taken by the English 1758.....	1768
	St. John, New Brunswick.....	United Empire Loyalists.....	May 18, 1783
	Fredericton do.....	United Empire Loyalists.....	1784
	Sydney, Cape Breton.....	Lt. Governor Des Barres.....	1785
	Fort Rouillé (Toronto).....	Jacques-Pierre de Taffanel, Marquis de la Jonquière, 16th Governor of La Nouvelle France, 1749-52.....	1793
	Toronto (York).....	Governor John Graves Simcoe.....	1790
	Belleville.....	Captain Myers.....	1790
	Prescott.....	Major Edward Jessup.....	1797
	St. Catharines (Welland).....	Founded.....	1797
	Hull, Ottawa County, P.Q.....	Philemon Wright.....	March 7, 1800
	Sherbrooke, P.Q.....	David Moe and others.....	1800
	Hamilton, Ontario.....	Hamilton.....	1813
	Ottawa do.....	Nicholas Sparks and others, 9 years before Rideau Canal was commenced.....	1817
	Brantford do.....	About.....	1826
	London do.....	Peter McGregor.....	1826
	Guelph do.....	John Galt.....	April 23, 1827
	Victoria, British Columbia.....	Governor Sir James Douglas.....	March 16, 1843
	New Westminster, British Columbia.....	Col. R. C. Moody.....	Feb. 1859
	Vancouver.....	Canadian Pacific Railway Company.....	1887
	Burrard Inlet.....		

NOTE.—For the preceding and other information of interest, See the "Hand Book of Canadian Dates," by F. A. McCord, Assistant Law Clerk, House of Commons, Ottawa

FRENCH Forts, Lake Superior to Cumberland House, and on Hudson's Bay, prior to the Cession of Hudson's Bay to Great Britain by the Treaty of Utrecht, 11th April, 1783—and the English Forts then existing or subsequently built.

French Forts.	English Forts.	Situation and Remarks.
Kaministiquia.....	William.....	French Fort was on south side of River Kaministiquia. English Fort is on the north side, above outlet into Lake Superior, near Pacific Railway elevators.
St. Pierre.....	Frances.....	English Fort on north side of outlet of Rainy Lake into Rainy River.
St. Charles.....		French Fort was on west side of outlet of Rainy River into Lake of the Woods at its south or upper end.
Maurepas.....	Alexander.....	French Fort at head of Lake of the Woods, and on its west side, and upper portion.
		French Fort on north side of outlet of the River Maurepas or Winnipeg into Lake Winnipeg, towards its head and upon its east side.
		English Fort on south side of outlet of the River Winnipeg.
Rouge.....		French Fort on east side of outlet of Red River into the south or upper end of Lake Winnipeg.
	Solkirk.....	English Fort on west side of Red River about 14 miles south of upper end of Lake Winnipeg.
La Reine.....	Garry.....	French Fort, built by De la Vérandrye in 1737, on North side of outlet of Assiniboine, on West side of Red River.
		English Fort, in City of Winnipeg, nearly demolished, 1888.
Bourbon.....	Norway House.....	English Fort, at North end and on East side of foot of Lake Winnipeg.
		French Fort, on West side of same Lake, and on South side of outlet of River Saskatchewan.
Dauphin.....		At North end and on West side of Lake Manitoba.
Paskoyac.....	Cumberland House.....	French Fort, on South side of the North Saskatchewan.
		English Fort, near Pine Lake, on North side of Saskatchewan.
	Churchill.....	English Fort, at outlet of River Churchill, West side of Hudson's Bay.
Bourbon.....	York Factory.....	On tongue of land at mouth of Nelson and Hayes Rivers, or the Bourbon and Ste. Thérèse Rivers, on West side of Hudson's Bay.
Niewasavane.....	Severn.....	Taken by d'Iberville, 1694, and named Bourbon.
		The first on East side, and the other on West side of outlet on River Severn, on the West side of Hudson's Bay.
Ste. Anne.....	Albany.....	French Fort, on West side of James' Bay, and South of Fort Albany, which was built by the English on an Island at the mouth of the Quitchichouan or Albany River.
St. Louis or Monsoni.....	Moose Factory.....	English Fort, taken by d'Iberville, 1685.
		Fort formerly built on East side of outlet of River Abitibi, on West side and at South end of James' Bay; now built on Island at outlets of Rivers Moose and Abitibi. Built by the English.
St. Charles.....	Rupert House.....	Fort taken by d'Iberville, 20th June, 1685.
		Built by the English on North side of the Rupert River, which is greater than the River Saguenay.
		This Fort is on East side and near South end of James' Bay.
		It was taken by d'Iberville, 2nd July, 1685.

HIGHER

Dates.

1498 St  
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1607

1610

1773 C

1806 W

Aug. 19, 1818 A

July —, 1827 A

1845 S

Aug. 27, 1852 A

do 24, 1853 E

June 1, 1854 D

May 11, 1861 D

Aug. 31, 1871 C

1872 L

do 31, 1875 C

Sept. 27, 1875 L

May 12, 1876 C

do 18, 1876 L

do 21, 1876 L

June 13, 1881 L

May 13, 1882 L

## HIGHEST LATITUDES attained—North. Arctic Regions and Polar Sea.

Dates.	Arctic Navigation.	Latitudes, North.	Longitudes.	Remarks.
		° ' "	° ' "	
	1498 Sébastien Cabot, son of John.	63 0 0	W. 80 0 0	Hudson's Bay. Not certain.
	1607 Henry Hudson.	80 23 0	E. 15 0 0	North of Spitzbergen.
	1607 do	72 0 0	W. 20 0 0	E. coast Greenland. Hold-with- Hope.
	1610 do	63 0 0	W. 80 0 0	Hudson's Bay.
	1773 C. J. Phipps.	80 48 0	E. ....	North of Franz Joseph Land.
	1806 W. Scoresby, sen.	81 12 42		
Aug. 19, 1818	Admiral W. Parry and Capt. John Ross.	76 54 0	W. 72 30 0	North of Carey Island.
July —, 1827	Admiral W. Parry	82 43 0	E. 19 15 0	North of Spitzbergen.
1845	Sir John Franklin	77 0 0	W. 97 0 0	Up Wellington Channel, on east side of Cornwallis Island, to head of Bathurst Island and down west side of the former.
Aug. 27, 1852	Admiral Inglefield	98 21 0	W. 74 45 0	Discovered Smith's Sound.
do 24, 1853	Elisha Kent Kane.	78 37 0	W. 70 40 0	Van Rensselaer Harbour.
June 1, 1854	Dr. Hayes, of Kane Exp.	79 43 0	W. 72 0 0	Cape Frazer and Grinnell Land.
May 11, 1861	Dr. Hayes	80 0 0	W. 74 0 0	Cape Hawks.
Aug. 31, 1871	Capt. F. Hall, with "Polar- is." Died of apoplexy, 8th Nov., 1871, before voyage was ended.	82 11 0	W. 54 0 0	N.W. of Repulse Harbour.
	1872 Lieut. Julius Payer	82 7 0	E. ....	Cape Fligely, Franz Joseph Lands, sledge journey.
do 31, 1875	Capt. George Nares, with the "Alert" and "Discovery."	82 25 0	W. 61 30 0	The "Alert" was moored near Cape Sheridan, Floeberg Beach, the highest latitude ever attained by any vessel.
Sept. 27, 1875	Lieut. Aldrich, of Nares' Exp.	83 7 0	W. 63 5 0	Sledge journey on Polar Sea.
May 12, 1876	Commander Markham and Lieut. Parr, of Nares' Exp.	83 20 26	W. 63 5 0	Saw Cape Columbia, W. Planted British Flag on Polar Sea.
do 18, 1876	Lieut. Aldrich do	82 16 0	W. 85 33 0	Sledge journey to Cape Alert, near C. Alfred Ernest, Grinnell Land, Westward along Sea.
do 21, 1876	Lieut. L. A. Beaumont, of Nares' Exp.	82 20 0	W. 50 45 0	Sherard Osborn Fiord, sledge jour- ney.
June 13, 1881	Lieut. Com. Geo. W. De Long, U.S.	77 15 0	E. 155 0 0	Polar Sea, westward of Bennett Island, north of Siberia, where his vessel the "Jeannette" was crushed by ice.
May 13, 1882	Lieut. Adolphus W. Greely, U.S.	83 24 0	W. 40 46 0	Lockwood Island, sledge journey by 2nd Lieut. J. B. Lockwood and Sergt. D. L. Brainard.

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ACADIA - OR { Nova Scotia.  
New Brunswick.

ILE-ROYALE OR Cape Breton.

PORT-ROYAL OR Annapolis.

ILE ST.-JEAN OR Prince Edward Island.

1598 to 1783.

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## ACADIA (NOVA SCOTIA).

The first successful attempt at the colonization of Acadia (Nova Scotia) appears to have been made by Pierre du Guast, Sieur De Monts, under Henry the Fourth of France. The country was then frequented by the Mikmak Indians in the pursuit of game and fish. De Monts, who was appointed in 1603 Lieutenant-General of New France by the same sovereign, went in 1604 to Port Rossignol,—now Liverpool, N.S.—then the residence of a French trader named Rossignol, who was trading with the savages (Mikmaks) without license, and whose property he therefore confiscated.

He established numerous settlements and forts on various parts of Nova Scotia and New Brunswick.

Having explored the coast of the Bay of Fundy (La Baie du Fond or Baie des Français) he there established a town which was named Port Royal (1605), and was afterwards granted by France to M. de Poutrincourt, who had accompanied Champlain to Acadia and was an associate of De Monts, who had the exclusive privilege of the fur trade for ten years. This first Port Royal was on the north side of the Bay, nearly opposite Goat Island; it was abandoned in 1607, re-occupied in 1610, and destroyed in 1613 by the Virginians under Captain Argall, the Governor of Virginia, in the name of Great Britain.

The second Port Royal was built between 1634 and 1645, by D'Aulnay de Charnisay, on the south side of the bay, about six miles eastward from the first.

In 1621 the whole territory situated at the east of a line drawn from Ste. Croix River northwardly to the St. Lawrence was granted by James I to Sir William Alexander, afterwards Earl of Sterling. This nobleman gave to Acadia the name of Nova Scotia.

The Earl of Sterling, Sir William Alexander, conveyed to Claude de la Tour, a French traitor who had married an English lady and had been created one of the Baronets of Nova Scotia, or of the whole of that Province except Ile-Royale (Cap-Breton).

By the treaty of St. Germain-en-Laye, 29th March, 1632, Charles I agreed to render to France the Province of Acadia, whereupon Louis XIII divided it among a number of his subjects.

On 16th August, 1654, the second Port Royal was taken by Sedgewick.

On 9th August, 1656, the country, having been reconquered under Cromwell, was granted to Sir Thomas Temple, William Crowne and Charles de la Tour.

On 3rd November, 1655, the Westminster Treaty, affecting the forts at Pentagouet, St. John and Port Royal, was passed by France and England.

By the Treaty of Breda (City of Brabant) the country was again ceded to France, 31st July, 1667. The French population at that time was about 1,000; their settlements were chiefly at Port Royal, La Hève, Chedabucto, and on the banks of rivers emptying into the Bay of Fundy. The Mikmak warriors were estimated at 3,000.

In 1686 Great Britain declared war against France. In May, 1690, Sir William Phipps, a native of Massachusetts, attacked Port Royal, which was dilapidated and defended by only 90 troops; he also attacked Chedabucto; both places capitulated.

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The French Governor, Villebon, who then arrived from France to take command of Acadia took possession of Port Royal. In 1696 he captured Fort Pemaquid between the Rivers Kennebec and Penobscot.

By the Treaty of Ryswick, 20th September, 1697, Acadia was restored to France.

Louis the XIV having acknowledged the Pretender as King of England, war was again declared, 4th May, 1710; this war lasted eleven years.

In September, 1710, General Nicholson, with 29 transports, four men of war and a tender conveying five regiments, besieged Port Royal, the commandant of which had only 260 effective men in garrison; he capitulated 13th October. Nicholson then named it Annapolis, in honour of Queen Anne, the reigning sovereign. Peace was concluded between England and France, 11th April, 1712.

By the Treaty of Utrecht, 11th April, 1713, Nova Scotia was definitely ceded to Great Britain as far as Ile Royale (Cap-Breton) which France had retained.

M. de Costebelle, under the French, in August, 1713, founded and commenced to fortify Louisbourg, the fortifications and outstanding forts of which were constructed from year to year until their final completion at the end of 25 years, and at a cost of about £1,500,000 sterling.

After the cession of Nova Scotia in 1713, a portion of the Acadians emigrated to Cap-Breton and other localities. Those who remained were settled at various localities along the Atlantic and Bay of Fundy coasts.

In 1744, France, under Louis XV, had declared war against England under George II. Du Quesnel who had succeeded M. Constable as Governor of Ile-Royale (Cap-Breton) fitted out an armament from Louisbourg under Du Vivier, who captured the English garrison at Canseau. Du Quesnel also despatched some irregular forces to Annapolis and other points; he died the same year and was succeeded by Duchambon.

On 7th May, 1745, Louisbourg was besieged by the combined fleets of Commander Warren from the West Indies and General Pepperrell with an army of 4,000 men from Massachusetts; the fortress was surrendered 16th June following.

During the summer of the same year, France despatched a formidable fleet of 70 vessels with 3,150 disciplined troops under the Duke d'Anville to re-establish her supremacy in North America; this fleet was disabled by a series of disasters; after a passage of 90 days, only seven of the vessels arrived in Chebucto harbour. A portion of the fleet returned to France under Admiral Jonquière, was reinforced by 38 sail and was on its way to New France when it was met and defeated by the English Admirals Anson and Warren off Cap Finisterre, 3rd May, 1747; La Jonquière was then taken prisoner.

The Colonies on hearing of the disaster to the fleet, had sent 470 troops to attack the Acadians residing at Grand Pré, but they were badly defeated 11th February, 1747.

By the treaty of Aix-la-Chapelle, 7th October, 1748, Cape Breton was restored to France.

On 17th August, 1749, La Jonquière was appointed Governor of New France, which he governed until the time of his death, 17th March, 1752.

Towards 1749 upwards of 1,000 Acadian families, comprising about 6,000 persons, occupied the lands for an extent of eight miles on the west side of River Avon, which discharges into the head of the Basin of Mines an arm of the

the Bay of Fundy; Grand Pré, their principal village in that locality is now named Lower Horton, one of the stations on the Windsor and Annapolis Railway; it is still called Grand Pré in that section of the country; it is one mile from the Horton Landing Station, 15 miles from Windsor and 60 miles from Halifax by rail.

#### FIRST EXPULSION AND TRANSPORTATION OF THE ACADIANS.

During the struggle between France and England for supremacy in North America, and the struggle between England and its Colonists under Washington for their Independence in the portions of the continent now forming part of the United States, 1732 to 1783, the Acadians then residing in Nova Scotia under English rule, were "Neutrals."

In 1755, under the reign of George II, Col. Charles Lawrence, the English Governor of Nova Scotia, and his Council, fearing that the Acadians might help to restore French rule in the Province, preconcerted a plan for their compulsory expulsion, although there was little to be apprehended, considering that the entire French population in Nova Scotia and New Brunswick at that time scarcely exceeded 10,000.

The Acadians were ordered to assemble at a stated hour, on the 10th September, 1755, in their respective localities, for the purpose of hearing the King's command, the nature of which was carefully concealed from them; little did they suspect that it was for their banishment and the confiscation of their properties.

The French settlers at Port Royal (Annapolis), and at Beau-Bassin (Cumberland) at the head of the Bay of Fundy, refused to comply with this arbitrary order, believing it was not in their interest; 2,200 of them went to Shediac and Ile St. Jean (Prince Edward Island), then under French rule.

Some were forced by starvation to return to their homesteads and were afterwards transported with their compatriots to various localities in North America; others remained with the Indians, and some reached various localities in the present Province of Quebec, at the Baie des Chaleurs, Magdalen Islands, Prince Edward Island and New Brunswick, etc.

At Cumberland Basin, the soldiery sent to subdue them, burnt their church, and 253 of their houses, with a great quantity of wheat and flax.

At Grand-Pré, 1,923 persons assembled and were made prisoners by the Bostonians and others from Massachusetts, who were the principal instigators of this unprecedented and tyrannical measure; they burnt 255 of their houses, 276 barns, and 155 of their outhouses; they also destroyed their church, and 11 of their mills; the Government of Nova Scotia also confiscated 20,858 heads of their cattle, horses, sheep, hogs, and all their properties.

At other settlements more than 5,000 Acadians complied with the arbitrary summons to assemble, and were made prisoners, besides which their properties were either destroyed or confiscated.

The total number of Acadians surprised and made prisoners on the 10th September, 1755, amounted to about 7,000.

The heads of families in many cases were separated from each other and from their children. They were embarked and placed in the holds of several old and leaky schooners leased from the agency of Apthorp & Hancock, of Boston, and other vessels, in the bottom of which they were packed promiscuously, without regard to age or sex, and shipped to various parts of the present United States as far as New Orleans.

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During the voyage, which lasted from one to two months or more, upwards of 1,000 died, and their corpses were launched into the sea.

The Acadians on board of one of the vessels overpowered the captain, his mate and sailors, and sailed back to St. John's, New Brunswick, where they were hospitably received by M. de Boishébert, the French commandant.

The others were shipped to Massachusetts, Pennsylvania, Maryland, Virginia, Carolina, Georgia and Louisiana. The colonists in most cases would not even allow them to land, unless some provision was made for their maintenance. Six hundred of them were sent afterwards from New York to St. Domingo at a time when pestilence was depopulating the island. In Pennsylvania, where 415 had been sent, a portion of the citizens of Philadelphia proposed to sell them as slaves. They and their compatriots who had survived the miseries of the sea voyage, were landed at the various localities in a state of utter destitution, amongst a hostile population, and during one of the worst seasons of the year. Many of them afterwards died on account of the hardships they had to endure, and also from starvation.

In South Carolina, where a detachment of 2,000 had been sent, 900 of the survivors were compelled to leave and to embark on board of two old vessels, one of which they had to abandon, and the other to repair during two months. They afterwards reached their compatriots stationed on the river St. John.

Haliburton, speaking of the Acadians, observes that the whole course pursued toward them is a stain on the Provincial Government of Nova Scotia which nothing can justify, and which all men with any sense of humanity must condemn.

In May, 1756, the French Government, moved, no doubt, by the atrocious treatment of the Acadians, declared war against England.

Early in May, 1758, Admiral Boscawen reached Halifax, the rendez-vous of the British forces, from whence he sailed soon after and arrived off the harbour of Louisbourg on the 2nd of June, with a fleet of 151 ships and an army of 14,000 men, commanded by Generals Amherst, Whitmore and Wolfe.

Louisbourg surrendered on the 26th July, 1758.

In the fortress there were 231 pieces of cannon, 18 mortars and a large quantity of stores and ammunition.

The population of the town, exclusive of the troops, was about 5,000 men.

The strength of the garrison before the siege consisted of 2,500 regular troops and 300 militia who were reinforced by 340 Canadians and Indians.

The officers, soldiers and citizens, in all 5,637 men, were sent, the former to England and the latter to France.

The British, fearing that the fortress might again fall into the hands of the French, dismantled and destroyed it.

The French had settlements on various parts of the island, the principal of which were Bras-d'Or, Sydney, St. Peter's and Arichat, where the fisheries gave employment to 27,000 men and 600 vessels, exclusive of boats.

The fall of Louisbourg gave possession of the whole of Cape Breton, with its valuable mines and fisheries to Great Britain.

After the capture of Cape Breton, Lord Rollo was sent to Ile St.-Jean, where 4,100 Acadians surrendered in 1758. The name of the island was changed to that of Prince Edward in 1799.

This island was visited by Cabot in 1497, and was afterwards named Ile St. Jean by Champlain towards 1603; it was first settled by the Acadians after

the expulsion from Acadia (Nova Scotia); it was re-taken by the English in 1745, restored to France by the Treaty of Aix-la-Chapelle, 18th October, 1748, and finally retaken by the English in 1758.

Most of the Acadians were then expelled from their properties and compelled to leave the island. Some of them went to the Magdalen Islands, to the Baie des Chaleurs, Shediac and other localities.

By the Treaty of Paris, 10th February, 1763, the whole of the French possessions in Canada were ceded to England; the Islands of St. Pierre and Miquelon were reserved to France.

In 1763 the population of Nova Scotia which included New Brunswick, amounted to 13,000.

In 1772 the population of Nova Scotia and Cape Breton, including 2,100 Acadians and 865 Indians, amounted to 19,985.

In 1784 the population of Nova Scotia proper was about 20,000.

The independence of the United States having been acknowledged by France in 1778 and by Great Britain in 1783, 20,000 refugee Loyalists arrived in Nova Scotia, 5,000 of whom were landed in New Brunswick. The Acadians who were then settled in the valley of the River St. John had to abandon their properties for the benefit of the Loyalists.

## SYNOPSIS.

### EXPULSIONS OF THE ACADIANS.

The approximate number of Acadians who were expelled from the Maritime Provinces at various times was as follows:—

1. In 1755—7,000 from Nova Scotia, by order of Governor Lawrence, who appointed a day, 10th September, 1755, and an hour for them to assemble in their various localities, in order to communicate to them the King's command, the nature of which was carefully concealed from them.

These unsuspecting colonists who had complied with the summons were seized by officers and soldiers chiefly from Boston and Massachusetts; their churches, dwellings and barns were burnt and their properties confiscated, after which they were transported in several old schooners to various parts of the English Colonies of America. They were packed so close in the holds of leaky vessels and endured so much misery during their two months' voyage in February and March, that 1,000 of them died at sea. Another 1,000 were expelled from South Carolina and re-embarked on board of two old vessels with orders to leave the country; they went to St. John, N.B.; 650 more were expelled from New York and sent to St. Domingo during the time of the pestilence there.

2. In 1758—3,000 were made prisoners of war at Louisbourg and were shipped to England whence they were sent to France, by order of the British Government; many of these went to reside at Belle-Ile-en-mer.

3. In 1758—4,100 Acadian colonists on Ile St.-Jean (now Prince Edward Island) were expelled and their properties confiscated by Lord Rollo when he took possession of the island for Great Britain. Many of them went to settle along the southern coast of New Brunswick and on the Magdalen Islands, which are chiefly inhabited by Acadians at the present time.

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4. In 1788—Upwards of 2,000, who were settled in the valley of the River St. John, were expelled, and their properties given to the United Empire Loyalists, 5,000 of whom were landed in New Brunswick.

ACADIAN FAMILIES SETTLED AT BELLE-ILE-EN-MER, FRANCE, 1765.

When l'Abbé LeLoutre returned to France, after his long captivity at Jersey Island, he worked for the Acadians with the same ardour and perseverance he had shown during his stay with them in Acadia.

On the 8th of November, 1765, he landed at Belle-Ile-en-Mer, where he was followed by seventy-eight families of Acadians, whom the King wished to settle there. Belle-Ile-en-Mer is a small island situated some leagues from the west coast of France, opposite Morbihan. It contains four parishes, Le Palais, or north centre; Bangor, or south centre; Sauzon, at the west end; and Locmaria, at the east end.

The Acadians, after their arrival, were divided between these four parishes. Each of the seventy-eight families received a concession of land; afterwards, at the request of l'Abbé LeLoutre, the King ordered 78 houses to be built, one for each family, to each of whom 1 horse, 1 cow, 3 sheep, and a sum of 400 French "livres," were also granted.

In order to remedy a deficiency in the parish registers respecting the origin of the Acadians, the States of Bretagne, who then ruled over Belle-Ile, issued an order on the 12th of January, 1767, to take down in writing the sworn declaration of the heads of the Acadian families, in order to trace back their origin and filiation in France. Sixty-four declarations were thus registered, some of which relating to more than one family.

Here follows the declaration of l'Abbé LeLoutre, late Vicar-General of the diocese of Quebec, in Canada, given on the 1st March, 1767 :

"The Acadians, settled on this Island, were transported by the English from Acadia to Boston and other English colonies during the month of October, 1755. They were afterwards sent to Old England and dispersed in various parts of the Kingdom, during 1756. After 1763, when the treaty of peace had been concluded, they were taken to France on the King's vessels, and landed at various seaports; in 1765, during the month of October, they came to settle on this Island by order of Monseigneur le Duc de Choiseul, the Minister of Marine."

See narratives by l'abbé H. R. Casgrain and M. E. Rameau in "Le Canada Français," octobre, 1889, p. 165, et janvier, 1890, p. 26, des Documents sur l'Acadie."

NOTE.—For further details respecting Acadia, etc., see Part VI.

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UNITED EMPIRE LOYALISTS  
SETTLERS AND RECIPIENTS OF GRANTS OF LAND,  
IN THE  
PROVINCE OF QUEBEC  
AND IN THE  
MARITIME PROVINCES.

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## UNITED EMPIRE LOYALISTS.

The Independence of the United States, which had been recognized by France under Louis XVI, in 1778, was recognized by Great Britain, and peace was re-established between the latter and the revolted colonies, according to the Treaty of Versailles, 3rd September, 1783.

Those who remained faithful to the British Crown were named the United Empire Loyalists, and were rewarded for their loyalty.

Upwards of 40,000 of them came to settle in Canada and the Maritime Provinces. They were distributed approximately as follows :—

10,000 in the present Province of Quebec.

15,000 in the Province of Nova Scotia.

5,000 in the Province of New Brunswick.

10,000 in the present Province of Ontario (chiefly along the St. Lawrence from Lake St. Francis up to Detroit).

In the Provinces of Quebec and Nova Scotia the Loyalists received from 200 to 1,200 acres per family, together with agricultural implements, and were supplied with food and clothing by the Government during two years.

On 9th November, 1789, an Order in Council of the Government of the Province of Quebec was passed, providing for the settlement of the children of the Loyalists, attaining full age, a grant of 200 acres more or less to each.

In Ontario they were also provided with lands and assisted by the Government of the Province of Quebec, in virtue of the same Order in Council.

Quebec and Ontario were under one Government, until Ontario became a separate Province, under the name of Upper Canada in 1792, the remainder of the Province being called Lower Canada.

Saint John to...

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Eastport to...

Saint John to...

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Shediac to...

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Bay Verte to...

Cape Tormen

Halifax to...

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Fredericton

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## DISTANCES.

## MARITIME PROVINCES.

Names of Places.		Miles.
Saint John to.....	Fredericton, west side of the river.....	65
do.....	do east side.....	86
do.....	do by steamboat.....	80
do.....	St. Andrews.....	65
do.....	Eastport, by steamboat.....	60
do.....	Portland do.....	230
Eastport to.....	Boston do.....	386
Saint John to.....	do by land and water.....	396
do.....	Washington, by land and water.....	834
do.....	Annapolis, by steamboat.....	45
do.....	Amherst do.....	105
do.....	do by land.....	138
do.....	Truro do.....	200
do.....	do by water.....	175
do.....	Halifax do.....	310
do.....	do by land.....	260
do.....	do mixed line, <i>via</i> Annapolis.....	173
do.....	Bend, by land.....	94
do.....	do by steamboat.....	120
do.....	Martin's Head, by land.....	48
do.....	Shepody.....	79
do.....	Sackville.....	127
do.....	Shediac.....	109
Shediac to.....	Richibucto.....	34
do.....	do by water.....	38
do.....	Chatham (Miramichi) by land.....	74
do.....	do do by water.....	80
do.....	Bathurst (Baie des Chaleurs) by land.....	122
do.....	Dalhousie, by land.....	175
do.....	do by water.....	220
do.....	Bedeque, P. E. Island, by steamboat.....	40
do.....	Charlottetown, P. E. Island, by steamboat.....	75
do.....	Cape Ray, Newfoundland.....	300
Bay Verte to.....	Charlottetown, by packet.....	51
Cape Tormentine to.....	Cape Traverse.....	9
Halifax to.....	Boston, by steam packet.....	428
do.....	Portland.....	380
do.....	Eastport or St. Andrews.....	280
do.....	Cape Canso. "Canseau".....	150
do.....	Charlottetown.....	285
do.....	Pictou.....	260
do.....	Bay Verte.....	325
do.....	Shediac.....	340
do.....	Pictou, by land.....	104
Fredericton to.....	Woodstock.....	62
do.....	Grand Falls.....	135
do.....	Quebec.....	357
do.....	Chatham (Miramichi).....	109
do.....	St. Andrews, <i>via</i> Harvey Settlement.....	70

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## PART IV.

### LATITUDES, LONGITUDES, CLIMATE, ETC.

AS OBSERVED DURING VARIOUS ARCTIC EXPEDITIONS AND OTHERWISE  
AND ALSO THE  
INTERNATIONAL CIRCUMPOLAR STATIONS.

#### COMPARATIVE

LATITUDES, LONGITUDES, VARIATION OF COMPASS.  
DECLINATION AND DIP OF NEEDLE.  
TEMPERATURE—RAIN AND SNOW FALL.  
THICKNESS OF SALT AND FRESH WATER ICE.  
DAYS OF CLOUDY WEATHER,  
HOURS OF SUNLIGHT

At the principal places from Newfoundland to the Pacific and  
Arctic Oceans.

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1st.—I

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2nd.—

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OBSERVATIONS.

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SIR ALEX. MACKENZIE'S  
EXPEDITIONS.

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1st.—Left Fort Chipewyan, 3rd June, 1789.

Returned to Fort Chipewyan, 27th September, 1789.

2nd.—Left Fort de la Fourche, on Peace River, May, 1793.

Returned to Fort de la Fourche, on Peace River, 24th Aug., 1793.

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## MACKENZIE'S FIRST VOYAGE.

### DOWN THE RIVER MACKENZIE, TO THE ARCTIC OCEAN, 1789.

x Sir Alexander Mackenzie, the celebrated explorer, was born in Inverness, Scotland, about 1755. He came to Canada when young, and was employed as a clerk in the North-West Fur Company.

Having a desire to explore the then great unknown North-West, he returned to Britain and spent a year in the study of astronomy and navigation. He returned to Fort Chipewyan (Lake of the Hills), now Lake Athabasca, in 1789. Mackenzie had spent nine years at this Fort before then, trading with the Indians. On the 3rd of June, 1789, he set out from Fort Chipewyan with a party of twelve persons and four birch bark canoes on his first expedition.

On Friday, the 5th of June, he entered a river at the western end of Great Slave Lake, to which he gave his name. He explored this river to the Arctic Ocean, which he reached on the 12th of July. He reached 69° north latitude, when his progress was stopped by ice. He arrived at Fort Chipewyan, on the return journey, on the 27th September.

## MACKENZIE'S SECOND VOYAGE.

### ACROSS THE ROCKY MOUNTAINS, TO THE PACIFIC OCEAN, 1793.

On October 1792, MacKenzie undertook a more daring and hazardous expedition to the west coast of North America. He left Fort Chipewyan on the 10th of October, 1792, with ten men and one large canoe, ascended Peace River and reached Fort de la Fourche near the Deer Mountain, Lat. 56° 9' West, Long. 117° 35' 15" West, where he wintered.

He left there in May, 1793, continuing his journey up the Peace River, through the Rocky Mountains and along the Parsnip River, thence westward to the Salmon River and the Pacific Ocean.

He reached the Pacific after a series of attacks from most of the Indian tribes encamped along the various streams along his route. His return to Fort de la Fourche, which he reached 24th August, 1793, was nearly as perilous to his life, and that of the few Indians who accompanied him.

He returned to his headquarters at Chipewyan and resumed his duties of chief trader. Of all the explorers of the North-West regions of Canada—Mackenzie was the most daring and the most exposed to war weapons of the Indians.

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1st.—1

2nd.—

3rd.—

## OBSERVATIONS.

### FRANKLIN'S EXPEDITIONS, ETC.

1st.—1819, 1820, 1821, 1822.

Hudson Bay to Copper-Mine River and Polar Sea.

2nd.—1825, 1826, 1827.

New York to Fort William, thence *via* Lake Winnipeg, Cumberland House and chain of Lakes to the River Mackenzie, thence down to the Polar Sea, and along its east and west coasts.

3rd.—1845, 1846, 1847.

*Via* Davis Strait, Baffin Sea, Lancaster Sound, Beechey Island, Wellington Channel up to head of Grinnell Land, latitude 77 degrees north; thence down channel along east side of Bathurst Island and west side of Cornwallis Island; thence down Peel Sound to Boothia Felix and King William's Island, in search of a passage to Behring Sea and the Pacific Ocean, with two ships—"Erebus" and "Terror."

## A-1.

## FRANKLIN'S FIRST EXPEDITION.

Via Hudson Strait and Bay to York Factory, thence Overland by chain of rivers and lakes, to Athabasca Lake, Great Slave Lake, Yellow Knife and Copper-Mine Rivers, thence on the Polar Sea, Eastward, and return.

1819-1820-1821-1822.

Dates.	Localities.	Temperature Fahrenheit varied	Latitude North.	Longitude West.	Distance travelled, Statute Miles.
<i>Journey Outward to the Polar Sea.</i>					
1819		From	To		
May 23..	Franklin and party leave Gravesend, England, on board "Prince of Wales" ship of H.E. B. C.				
Aug. 30..	York Factory reached. Remained there until 9th Sept.		57 0 3	92 26 0	3,458
Oct. 6..	Norway House, N.E. end of Lake Winnipeg		53 41 38	98 1 24	
do 22..	Cumberland H., Pine Lake, N. side of North River Saskatchewan		53 56 40	102 16 41	690
Nov. 6..	Pine Lake frozen over.				
1820					
Jan. 18..	Left Cumberland with sledges and snow shoes.	40			
do 19..					
Mar. 26..	Reached Fort Chipewyan, N. side and West end of Athabasca Lake, near Outlet into Mackenzie River. Remained there about 23 months.		58 42 38	111 18 20	857
July 18..	Departure with 16 men and 3 canoes.				
do 29..	Old Fort Providence, the Northernmost trading post of the North West Company, 22 miles up North Arm and North side of Great Slave Lake		62 17 19	114 9 28	326
Aug. 2..	This Fort 76 M. East of Moose-Deer Island Fort.				
do 20..	Departure with 6 officers, 17 voyageurs and 3 interpreters and 3 Indian wives with 3 children, 3 large and 2 small canoes.				
	Fort Enterprise via Yellow Knife River which ascends North Eastward, 156½ miles	+ 31 + 42 64 30	112 30		217
	This building, 50 x 24 feet, erected by Franklin.				
	Party compelled to remain there 9 months for provisions.				
	Indians and others refuse to proceed at this season.				
1821					
June 7..	Dr. Richardson and portion of party start for the Copper Mine River and the Polar Sea	+ 73			
do 14..	Franklin and remainder of party follow.				
July 18..	Arrived at mouth of Copper-Mine River, Polar Sea.				
	Discharged 4 men.		67 47 50	115 49 33	450
do 21..	Commenced voyage Eastward along coast of Arctic Ocean, 20 persons in all.	+ 43 + 45			
do 23..	Port Epworth, reached.		67 42 15	112 30 0	
do 27..	Detention Harbour, reached.		67 53 45	110 41 20	
Aug. 18..	End of voyage Eastward, at Cape Turnagain, on Polar Sea, beyond Melville Sound and South of Dease Strait.	+ 38	68 18 50	109 25 0	638
	Coast followed 555 G. M. from mouth of Copper-Mine River.				
	Total distance travelled on Outward Journey to Polar Sea, and Eastward along Sea Coast				6,63

NOTE. During the Return Journey, one of the party was lost, four died of exhaustion and starvation and five killed.

## A-2.

## FRANKLIN'S FIRST EXPEDITION—Continued.

1819-1820-1821-1822.

n of rivers  
opper-MineDistance  
travelled,  
Statute-  
Miles.

3,458

690

857

326

217

150

638

6,63

starvation

Dates.	Localities.	Temperature Fahrenheit.	Latitude North.	Longitude West.	Distance travelled, Statute- Miles.
<i>Return Journey From Cape Tarnagain on the Polar Sea To Fort Enterprise.</i>					
1821		From	To		
Aug. 22.	Sent a tin case sealed adrift with account of journey, hoping it might drift Eastward.				
	Commenced return journey from Cape Tarnagain.		68 18 50	109 25	
do 25.	Went to bed dimerless and supperless.				
	Sea voyage terminated. Mosquitoes disappear.	+ 42°			
do 26.	Sea water temperature during voyage.	+ 43 + 48			
	Commenced ascent of Hood River.				
do 31.	Variation 41° 43' 22" E. Dip of needle, 88° 58' 48"		67 19 23	109 44 30	
Sept. 10.	Built 2 small canoes.	+ 34 + 36			
do 19.	Compass, etc., abandoned. Too weak to carry it.				
do 21.	Canoe broken. Snow 2 feet deep.	+ 25 + 30			
do 25.	Richardson abandons specimens.				
	Killed 5 deer, after feeding 8 days on Tripe de Roche, a sort of moss.				
	Credit returns without Junius who never returned.				
do 30.	Encamped about 70 miles North of Fort Enterprise.		65	112 20	
Oct. 6.	Ate old shoes and scraps of leather.				
	Credit and Vaillant unable to go further.				
do 7.	Franklin continues journey.				
	Richardson, Hepburn and Hood unable to travel.				
do 9.	Michel, the Troquois voyageur, suspected of shooting J. Bte, Belanger, Fontana and Perrault after leaving Franklin.				
do 11.	Michel gives human flesh to eat, saying it was wolf.				
do 20.	Michel shoots Hood at door of tent when alone.				
do 23.	Richardson, Hepburn and Michel resume journey.				
	Richardson shoots Michel, for self protection.				
do 29.	They arrive at Fort Enterprise, where Franklin had arrived on the 10th, had left on the 20th and returned on the 21st.		64	112 30	
	One partridge killed, divided into 6 parts; first flesh for 31 days, says Franklin.				
Nov. 1.	Peltier dies of hardship and starvation.				
do 2.	Samandre dies of hardship and starvation.				
do 7.	Relief received, sent by Back, up to which time party lived on pounded bones of dead deer and Tripe de Roche.				
do 16.	Franklin and party leave Fort Enterprise with Relief Indians.				
do 26.	Arrive at Akaitcho's camp; remain there five days.				
Dec. 11.	Arrive at Fort Providence; remain there four days.		62 17 19	114 9 28	
do 17.	Arrive at Moose-Deer Island; remain there until 26th May, 1822.		61 11 8	113 51 37	
1822					
June 2.	Arrive at Fort Chipewyan; remain there three days.		58 42 38	111 18 20	
July 4.	Arrive at Norway House, Foot of Lake Winnipeg.		53 41 38	98 1 24	
do 14.	Arrive at York Factory, Hudson's Bay, thence to England.		57 0 3	92 28 0	
Total distance travelled Overland and on the Polar Sea, per Franklin.					5,550

## B-1.

## FRANKLIN'S SECOND EXPEDITION.

1825-1826-1827.

Route Travelled and partly Surveyed.	Stations. Miles.	Dates.
<i>During the Summer of 1825.</i>		
New York to Penetanguishene, <i>via</i> Albany, Niagara Falls, Toronto, Lake Simcoe to Kempenfeldt Bay, Lake Huron, 15th March to 23rd April	760	1826
Lake Huron. Penetanguishene to Sault-Ste-Marie, 23rd April to 1st May	230	
Lake Superior. Sault-Ste-Marie to Fort William, 1st May to 10th May	100	
Fort William. Sault Ste. Marie, Lake of the Woods, Lake Winnipeg and the North Saskatchewan River to Cumberland House, 10th May to 15th June	1,018	Jan. 1 to June 21
Cumberland House, <i>via</i> chain of lakes to Fort Chipewyan at junction of Lake Athabasca and Slave River, 16th June to 15th July	840	July 1 to 7
Fort Chipewyan to Fort Resolution at junction of Slave River outlet and Great Slave Lake, 25th to 29th July	240	
Fort Resolution to New Fort Providence, at foot of Great Slave Lake and above its outlet into the Great Mackenzie River, 31st July to 2nd August	130	
New Fort Providence, (where Mgr. Clut resides, 1889) down the Mackenzie River to Fort Simpson, 2nd to 4th August. Mgr. Clut intends to establish his Headquarters at Fort Chipewyan, near lower or west end and on north side of Lake Athabasca in 1890.	103	July 8 to 16
Fort Simpson to junction of Bear Lake River, 5th to 8th August	271	do 17 to 31
Bear Lake River to, and the return from Gary Island at the mouth of the Mackenzie in August, 1825. This was Franklin's 1st journey down the Mackenzie. He again descended in June, 1826	1,206	Aug. 1 to 17
Length of the Bear Lake River to Fort Franklin near outlet of South West Arm of Great Bear Lake, 8th August to 5th September	91	do 18 to 31
Dr. Richardson's excursion to the North-East termination or upper end of Great Bear Lake, near Fort Confidence, 4th July to 1st September	483	Sept. 1 to 21
Distance travelled, as estimated by Franklin	5,803	
Number of miles surveyed, as estimated by Franklin	2,593	
		1826
Fort Simpson, near junction of the Rivers Liard and Mackenzie, below Great Slave Lake. Lat. 62° 11' 0" N. Long. 121° 38' W. per Franklin.		
Old Fort Norman, towards outlet of Bear River from Great Bear Lake. Lat. 64° 49' 38" N. Long. 124° 41' 47" W. Var. 39° 57' 52" E. per Franklin.		
Fort Franklin, near outlet of Great Bear Lake into Bear River. Lat. 65° 11' 56" N. Long. 123° 12' 44" W. Var. 39° 9' 0" E. per Franklin.		
Old Fort Good Hope, on the Mackenzie. Last Trading Post, 312 miles below Fort Norman. Lat. 67° 28' 21" N. Long. 130° 54' 38" W. Var. 47° 28' 41" E.		
See Part VII for further particulars respecting the "Mackenzie River and Region."		

## B-2.

## FRANKLIN'S SECOND EXPEDITION.

1825-1826-1827.

Dates.	Route.	Temperature Fahr. °			Statute Miles.
		From	To	Mean	
1826	<i>Fort Franklin to the Polar Sea.</i>				
Jan. 1....	Fort Franklin. Temperature observed during the month.	16.2	31.3	23.8	0
June 24....	Left Fort Franklin for Polar Sea.				
July 1 to 7...	Old Fort Hope to west mouth of Mackenzie.	41.6	55.8		654
	<i>Voyage under Franklin on Polar Sea, West of the River Mackenzie, With the Lion and Reliance Boats, 8 men each.</i>				
July 8 to 16.	Mouth of Mackenzie to Herschel Island	47.3	53.3		
do 17 to 31.	Herschel Island to Icy Reef	39.3	58.5		
Aug. 1 to 17.	Icy Reef to Return Reef near Point Beechey.				
	Lat. 70° 26'. Long. 148° 52'.	38.1	44.6		374
do 18 to 31.	Icy Reef to the Mackenzie. Returning.	35.7	45.6		374
Sept. 1 to 21.	Mouth of Mackenzie to Fort Franklin.	31.1	45.8		674
	Total going and returning.				2,076
1826	<i>Voyage under Dr. Richardson on the Polar Sea, East of the Mackenzie, With the Dolphin and Union Boats, 6 men each.</i>				Nautical Miles.
July 8 to					
Aug. 8....	East mouth of Mackenzie or from Point Encounter to mouth of the Copper-Mine River, Eastward.	32	26	46.68	863
Aug. 9 to 18.	Mouth of Copper-Mine River, overland to Fort Confidence at North-East or upper end of Great Bear Lake.				115
Aug. 18 to					
Sept. 1....	Fort Confidence to Fort Franklin at lower or west end and outlet of Great Bear Lake, by boat and canoe, (175 miles in a direct line)				318
	Reached Fort Franklin, after an absence of 71 days.				
	Total, 1,296 Nautical M. = 1,490 Statute M.				1,296
N.B.	The N. E. entrance of the Mackenzie River to Great Slave Lake, by Franklin's Survey in 1825, is 1,045 Statute Miles.				

Statute  
Miles.750  
250  
400

1,018

840

240

130

103

271

1,296

91

183

5,803

2,593

Franklin.

Franklin.

## C.

## FRANKLIN'S THIRD EXPEDITION

1845-1846-1847.

*Via* Davis Strait, Baffin Sea, Lancaster Sound, Beechey Island, Wellington Channel up to head of Grinnell Land, Latitude 77 degrees North; thence down channel along east side of Bathurst Island and west side of Cornwallis Island; thence down Peel Sound to Boothia Felix and King William's Island, in search of a passage to Behring Sea and Pacific Ocean, with two ships "Erebus" and "Terror."

Franklin never returned from this Expedition. He perished with his entire party, before any of the Expeditions sent for their relief could reach them.

First traces found were inscriptions upon three tombstones at Beechey Island, discovered in August, 1850, by Captain Ommaney, R. N., of H.M.S. "Assistance" and by Captain Penny of the "Lady Franklin."

In October, 1854, Dr. Rae ascertained from the Esquimaux of Boothia Felix that a party of about forty white men were met on the west coast of King William's Island, on their journey to the Great Fish River, where they all perished of starvation towards the spring of 1850.

Captain McClintock, R.N., LL.D., during his voyage on the small steam vessel "Fox," of 170 tons, 30th June, 1857, to 21st September, 1859, ascertained the only authentic intelligence of the death of Sir John Franklin and of the fate of the crews of the "Erebus" and "Terror."

From a record found in a cairn near the head of King William's Island, in May, 1859, by Lieut. W. R. Hobson, under M. Clintock, it appears that the latter died 11th June, 1847, at which time the total loss by deaths had been 9 officers and 15 men, out of a party of 105 who had landed there 22nd April, 1847, their vessels having been beset by ice since 12th September, 1846.

This document was dated 25th April, 1848, and signed by Captain F. R. M. Crozier, of the "Terror," and Captain James Fitzjames of the "Erebus." They added a note stating that they would start next day for Back's Fish River.

For details see Captain McClintock's narrative respecting Franklin's discoveries and his own, published in London, 1859.

See also List of the various Expeditions sent for the relief of Sir John Franklin, 1848 to 1859 inclusive, at end of Part IX.

Dates.

1820  
August 21...  
September...  
October...  
November...  
December...

1821  
January...  
February...  
March...  
April...  
May...  
June...  
do 21...  
do 23...

July 10...

do 21...  
do 27...

## D-1.

## FRANKLIN'S FIRST EXPEDITION.

Temperature of Region—Fort Enterprise to the Polar Sea.

From Latitude 64° to 68° and Longitude 109° to 116°.

1819-20-21-22.

Channel  
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"Terror,"

his entire

ey Island,  
sistance"

Felix that  
William's  
starvation

am vessel  
l the only  
the crews

l, in May,  
died 11th  
d 15 men,  
aving been

F. R. M.  
hey added

iscoveries

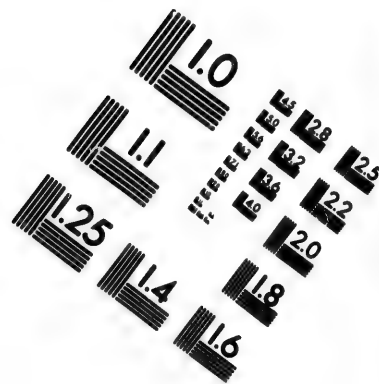
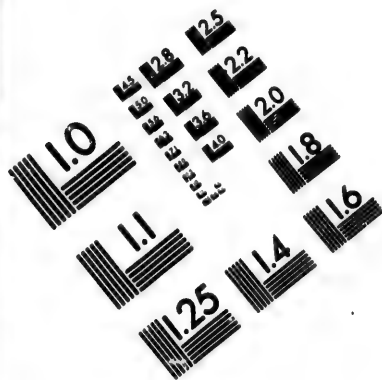
Franklin,

From Latitude 64° to 68° and Longitude 109° to 116°.

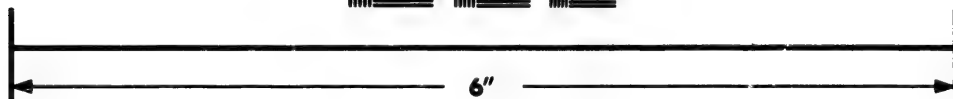
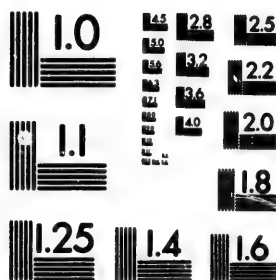
1819-20-21-22.

Dates.	Localities.	Thermometer Fahrenheit. Varied.		Mean Temper- ature.	Variation of Compass East.
		From	To		
Fort Enterprise. Log House 50 x 24 where Franklin spent several months.					
1820					
August 21.	At tent of Encampment.	+ 31	+ 42		
September.	Building commenced on the 4th, near Lat. 64 Long. 112½.	+ 16	+ 53	+ 33½	
October.	Removed from Tents to House on 6th.	+ 37	- 5	+ 23	
November.	At Fort Enterprise.	+ 25	- 31	+ 7	
December.	do do	+ 6	- 57	- 29.7	
1821					
January.	do do	+ 20	- 49	- 15.6	
February.	do do	+ 1	- 51	- 25.3	
March.	do do	+ 20	- 49	- 11.5	
April.	do do	+ 40	- 32	+ 4.6	
May.	do do	+ 48	+ 8	+ 32.0	
June 7.	Dr. Richardson starts in advance of Franklin who joined him on 21st.	+ 73			
do 21.	Copper-Mine River, Point Lake.				
do 23.	Lat. 65° 12' 14", Long. 113° 8' 25", 55 miles below Fort Enterprise.	+ 39			
	Ice 6 to 7 feet thick along channel.				45 4
July 10.	Portage leading to Great Bear Lake, Lat. 67° 1' 10", Long. 116° 27' 28".				44 11 43
	Dip of needle 87° 31' 18".				
do 21.	Polar Sea, Lat. 67° 47' 50".	+ 43	+ 45		
do 27.	Detention Harbour on Polar Sea, Lat. 67° 53' 45", Long. 110° 41' 20".				40 49 34





# **IMAGE EVALUATION TEST TARGET (MT-3)**



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## D-2.

## FRANKLIN'S SECOND EXPEDITION.

1825-26-27.

Temperature at Fort Franklin, as observed by Mr. Dease of the Franklin Expedition, from Sept., 1825, to Sept., 1826:—In Latitude  $65^{\circ} 11' 56''$  North, and Longitude  $123^{\circ} 12' 44''$  West.—At lower or S. W. end of Great Bear Lake, towards its outlet.

Months.	Temperature.		
	Highest.	Lowest.	Mean.
September....	-48.12	-38.08	-42.92
October.....	-24.80	-14.18	-20.28
November.....	-8.39	-3.72	-2.79
December.....	-8.18	-21.63	-13.96
January.....	-16.17	-31.25	-23.78
February.....	-4.95	-21.71	-12.79
March.....	-3.87	-22.61	-8.26
April.....	-24.83	-3.99	-15.21
May.....	-43.89	-24.47	-36.35
*June.....			-48.00
July.....	-60.24	-42.64	-52.10
August.....	-58.21	-42.98	-51.09

\*Record for month of June was stolen by Esquimaux, mean temperature given cannot be more than one or two degrees astray.

Years.

May 13,  
1882 Lo

1881 1883 Gr

1881 1883 Di

1819 1820 M

1821 1822 W

1822 1823 Ig

1824 1825 Po

1829 1832 B

1846 1854 R

1848 1849 P

1848 1849 P

1849 1850 C

1849 1850 N

1849 1851 F

1848 1851 F

1850 1852 P

1850 1851 G

1850 1853 F

1850 1853 E

1851 1852 V

1852 1853 C

1853 1854 C

1851 1852 I

1852 1854 I

1852 1853 N

1853 1854 V

1853 1855 V

1858 1859 I

1860 1861 I

1869 1870 S

1871 1872

1872 1873

1875 1876

1875 1876

1872 1874

1882-1883

\* Ca

## E-1.

## Mean Temperature during the Summer and Winter months.

## At various Polar Stations.

Years.	Stations.	Latitude North.	Longitude West.	Temperature June, July, August.	Temperature December, January, February.	Remarks.
				Above Zero.	Below Zero.	
May 13, 1882	Lockwood Island.	83 24 0	40 46 0	14.0	May.	No record. Extreme North reached by Lieut. Lockwood of the Greely Expedition. — N. W. coast of Greenland on the Polar Sea.
1881 1883	Grinnell Land, Lady Franklin's Bay; Fort Conger.	81 44 0	64 45 0	34.4	38.9	W. side—Hall Basin to Robeson Channel. Var. 110° 12' W.
1881 1883	Dijmphna (Sea of Kara) S. side of Nova Zembla.	70 10 0	64 0 0	34.0	8.6	S. side of Nova Zembla, Russia.
1819 1820	Melville Island.	74 47 0	111 0 0	37.1	28.0	Melville Sound.
1821 1822	Winter Island (Parry).	66 11 0	83 0 0	35.0	20.5	Fox Channel, Hudson's Bay.
1822 1823	Igloodik (Parry).	69 21 0	82 0 0	34.4	21.3	do do
1824 1825	Port Bowen.	73 13 0	80 0 0	37.0	25.1	Baffin Sea, Eclipse Sound.
1829 1832	Boothia Felix.	69 59 0	92 0 0	38.0	27.7	Esquimaux Settlers, Gulf of Boothia.
1846 1854	Repulse Bay—Fort Hope.	66 32 0	87 0 0	35.7	23.3	N. of Rowe's Welcome, Hudson's Bay.
1848 1849	Port Leopold.	73 50 0	90 15 0	34.0	31.7	Regent Inlet.
1848 1849	Point Providence.	64 14 0	165 0 0	37.3	20.5	Behring Sea.
1849 1850	Chloris Peninsula.	66 58 0	173 0 0	45.0	12.0	Jan. E. Siberia.
1849 1850	North Star Bay.	76 34 0	69 0 0	37.7	25.7	Jan. N. E. end Baffin Sea, Greenland.
1849 1851	Fort Simpson*.	62 7 0	122 0 0	62.9	June. 14.7	R. Mackenzie.
1848 1851	Fort Confidence.	66 40 0	119 0 0	43.7	do 29.0	N. E. part of Great Bear Lake.
1850 1852	Point Clarence.	60 45 0	165 0 0	45.0	7.6	Behring Sea.
1850 1851	Griffith Island.	74 34 0	95 30 0	34.5	28.8	Peel Sound.
1850 1853	Prince of Wales Strait.	72 47 0	118 0 0	36.7	31.2	Beaufort Sea and Melville Sound.
1850 1853	Bay of Mercy.	71 6 0	118 0 0	36.7	11.2	Sound.
1851 1852	Walker Bay.	71 35 0	118 0 0	37.0	17.0	McClure Strait.
1852 1853	Cambridge Bay.	69 3 0	105 0 0	36.9	31.8	N. side Dease Strait.
1853 1854	Canden Bay.	70 8 0	145 0 0	37.7	June. 21.5	Polar Sea Coast—W. of R. Mackenzie.
1851 1852	Batty Bay.	73 12 0	91 0 0	24.1	Sept. 18.5	E. side Somerset Island.
1852 1854	Beechey Island.	74 5 0	92 0 0	39.4	July. 28.3	Franklin wintered 1845-46.
1852 1853	Northumberland Sound.	74 31 0	97 0 0	34.3	32.3	W. of Barrow Strait.
1853 1854	Wellington Channel.	75 31 0	92 0 0	35.1	14.2	Franklin ascended.
1853 1855	VanRensselaer Harbour.	78 37 0	70 53 0	33.0	29.6	W. Coast of Greenland.
1858 1859	Port Kennedy.	72 01 0	94 0 0	40.1	July. 35.3	Bellot Strait—The "Fox" wintered here.
1860 1861	Foulke.	78 18 0	73 0 0	36.8	21.2	Smith Sound.
1869 1870	Sabine Island.	74 32 0	19 0 0	33.2	Aug. 10.0	E. Coast Greenland.
1871 1872	Thank-God Harbour.	81 35 0	61 44 0	37.7	30.5	Robeson Channel.
1872 1873	Polaris House.	78 18 0	72 51 0	No Record	21.2	
1875 1876	Discovery Harbour.	81 44 0	65 0 0	34.1	36.7	Robeson Channel.
1875 1876	Floeberg Beach.	82 27 0	61 22 0	34.3	31.0	Lincoln or Polar Sea.
1872 1874	Franz Josef Land.	79 51 0	59 0 0	32.9	20.5	Between Greenland and Nova Zembla.
1882 1883	Fort Rae.	62 39 0	115 44 0	55.5	July. 17.6	Head N. arm of Great Slave Lake.

\* Capt. Lefroy, 1842-44, gives Lat. 61° 52' N., and Long. 121° 25' 2" W. at Fort Simpson.

## E-2.

Comparison of Climate at Polar stations on the West Coast of Greenland, with that of other Polar stations in Russia and in Canada.

Stations.	Latitude.	Summer Temperature June, July, August.	Winter Temperature December, January, February.	Range of Temperature.
<i>1. Siberian and Russian North American Stations.</i>				
Yakoutsk, Siberia .....	62 2	+58.3	-36.6	94.9
Yukon, Alaska.....	66 0	+59.7	-23.9	83.6
<i>2. Stations on the West Coast of Greenland.</i>				
Rennselaer Harbour .....	78 37	+33.0	-29.6	62.6
Westenholm.....	76 33	+38.0	-28.7	66.7
Upernavik.....	72 48	+35.2	-12.5	47.7
Omenak.....	70 41	+40.7	- 5.1	45.8
Jacobshavn.....	69 12	+42.4	+ 0.8	41.6
<i>3. Stations West of Baffin's Bay.</i>				
Melville Island.....	74 47	+37.1	-28.2	65.3
Assistance Bay .....	74 40	+35.9	-26.7	62.6
Port Bowen.....	73 14	+37.0	-25.1	62.1
Boothia Felix.....	69 59	+38.0	-27.7	65.7
Igloodik .....	69 21	+35.2	-21.3	56.5
Old Fort Good Hope. River Mackenzie.....	67 28	+39.7	-25.1	64.8
Winterinsel.....	66 11	+35.1	-20.5	55.6
Fort Franklin, at W. end of Great Bear Lake...	65 12	+50.2	-17.0	67.2
Mean.....				62.3

The above is according to Charles A. Schott of the United States Coast Survey

Dates.

1819  
Oct. 6.  
do 22.  
  
1820  
Feb. 23.  
March 7.  
do 10.  
do 26.  
July 28.  
do 29.  
Aug. 15.  
  
1821  
July 23.  
do 27.  
Aug. 18.  
do 26.

## F

## FRANKLIN'S FIRST EXPEDITION.

1819-1820-1821-1822.

## Variation of Compass and Dip of Needle observed by Franklin.

Dates.	Localities.		Variation of Compass East.			Dip of Needle.		
<i>First Expedition.</i>								
<i>Between Winnipeg and the Polar Sea, via Copper-Mine River, and thence on the Polar Sea.</i>								
1819								
Oct. 6.	Norway House.	Foot of Lake Winnipeg	14	12	41	83	40	10
do 22.	Cumberland H.	North Saskatchewan	17	17	29	83	12	50
1820								
Feb. 23.	Ile à la Crosse.		22	15	48	84	13	35
March 7.	Beaver River.	W. side of Clear Lake.	22	23	22			
do 10.	Methye Lake.	Trading Post.	22	50	28			
do 20.	Fort Chipewyan.	West end.—Outlet L. Athabasca.	22	49	32			
July 28.	Ile à la Cache.	Great Slave Lake.	31	2	6			
do 29.	Old Fort Providence.	North Arm.—Great Slave Lake.	33	35	55	86	88	2
Aug. 15.	Grizzly Bear Lake.	South of Fort Enterprise.	36	50	47	87	20	35
1821								
July 23.	Port Epworth.	Eastward of Copper-Mine River on Polar Sea.	44	37	42			
do 27.	Detention Harbour.	do do	40	49	54			
Aug. 18.	Cape Turnagain.	Extreme Point Eastward, on the Polar Sea, reached by Franklin.	44	15	46	89	31	12
do 26.	Hood River—Mouth—	on Polar Sea—Return voyage.	41	43	22	88	58	48

## G

## FRANKLIN'S SECOND EXPEDITION.

1825-1826-1827.

Observations for Latitude, Longitude and Variation—by Franklin, during his two journeys to the Polar Sea, 1825 and 1826.

Place of Observation.	Date.		Latitude North.	Longitude by Chronometer West.	Variation East.
	Month	Day			
	1825				
Penetanguishene, Lake Huron.....	April.....	11	44 48 42	80 00 52	0 56 16
Fort William, Lake Superior.....	May.....	12	48 23 40	89 16 8	7 17 28
Rainy River, H. B. Co. Fort.....	do.....	23	48 36 18	93 28 33	10 42 33
Lake of the Woods.....	June.....	1	49 21 19	94 38 16	12 13 39
Cumberland House, N. R. Saskatchewan.....	do.....	22	53 57 33	102 21 46	19 14 21
Ile à la Crosse Fort.....	do.....	27	55 25 25	107 54 36	23 19 20
Fort Chipewyan, Outlet L. Athabasca.....	July.....	11	58 42 38	111 18 20	25 29 37
Fort Resolution, Junction Slave River and Great Slave Lake.....	do.....	30	61 19 26	113 45 00	22 19 9
Outlet G. Slave L. into R. Mackenzie.....	August.....	1	61 50 00	118 47 56	33 13 21
Old Fort Norman, R. Mackenzie.....	do.....	7	64 40 38	124 44 47	39 57 52
Old Fort Good Hope, R. Mackenzie.....	do.....	11	67 28 21	130 51 48	47 28 41
1826					
Leith Pt., G. Bear Lake.....	April.....	22	65 46 49	119 13 53	44 54 16
Fort Franklin, G. Bear Lake.....	June.....	7	65 11 56	123 12 44	39 9 0
Old Fort Norman on the R. Mackenzie.....	do.....	27	64 40 38	124 44 47	39 57 52
Old Fort Good Hope, Lowest Trading Post.....	July.....	1	67 28 21	130 51 38	47 28 41
Near West Outlet of R. Mackenzie.....	do.....	7	68 52 05	136 18 15	
<i>West of R. Mackenzie.</i>					
Barter Island.....	August.....	4	70 5 11	143 54 55	45 36 04
Foggy Island.....	do.....	8	70 16 27	147 38 04	43 15 12
Return Reef.....	do.....	17	70 25 53	148 52 00	41 20 00
<i>East of R. Mackenzie.</i>					
Cape Bathurst.....	July.....	18	70 30 46	127 30 0	
Cape Lyon.....	do.....	25	69 46 25	122 50 55	
Point Clifton.....	August.....	1	69 13 15		
Cape Sir W. Hope.....	do.....	4	68 58 23		52 30 00
Cape Kendall.....	do.....	8	67 58 26	115 18 00	
Mouth of Copper-Mine River.....	do.....	8	67 47 50	115 36 49	48 00 00

N. B.—The longitude of Fort William was determined by the Boundary Line Commissioners, after Franklin's departure for England, as being 89° 22' 40".

New Fort Norman is about 23 miles below the ruins of the Old Fort which was on the West side of the Mackenzie.

Over the  
On easter  
On wester  
On easter  
Saskatche  
Between  
Eastward  
In Ontari  
Princ  
Fort Con  
3.95

H-1  
HYETAL OR RAIN TABLE.  
—DOMINION OF CANADA.—

Localities.	Precipitation Inches of Water.
Over the westerly slope of the Cascade Mountain and Vancouver Island.....	50
On eastern slope of Cascade Mountain.....	20
On western slope of Rocky Mountains.....	25
On eastern slope of Rocky Mountains.....	20
Saskatchewan Valley.....	15
Between Red-River and the Meridian of 100 degrees of West Longitude.....	25
Eastward of Red-River, including Lakes Superior, Michigan, Huron and Erie.....	30
In Ontario, East of Hamilton, covering Lake Ontario, Provinces of Quebec, New Brunswick, Prince Edward Island and Nova Scotia.....	36
Fort Conger—Lat. 81° 44' Long. 64° 45'. During Greely Expedition. 1881-82 1882-83— 3.95 to 3.82 inches, per year.....	4

## H-2.

QUARTERLY Average Number of Days of Rain in the Dominion of Canada and in Newfoundland, and the Number of Days of Snow in each Month during the Year 1886.

	Number of Days of Rain.					Number of Days of Snow.							
	Winter.	Spring.	Summer.	Autumn.	Year.	January.	February.	March.	April.	May.	October.	November.	December.
Ontario.....	13.3	22.9	25.5	15.8	77.5	11.3	9.0	6.6	2.4	Σ	0.9	6.9	9.7
Quebec.....	9.5	28.6	35.9	14.8	88.8	11.6	8.9	9.4	2.8	1.4	1.9	9.5	11.3
New Brunswick.....	16.3	24.7	36.3	23.8	101.1	11.1	8.3	9.4	2.9	Σ	0.4	4.3	9.8
Nova Scotia.....	21.8	24.9	33.2	26.9	106.8	6.0	8.8	7.6	2.6	.....	0.5	3.9	7.9
Prince Edward Island.....	23.5	38.5	49.0	39.0	150.0	9.5	11.0	13.0	5.5	.....	0.0	2.0	13.0
Manitoba.....	0.5	21.4	18.8	5.3	46.0	7.3	7.2	5.8	1.6	1.2	1.8	5.2	4.3
North-West Territory.....	1.0	14.7	15.0	2.9	33.6	5.5	5.3	4.7	0.7	1.4	2.6	4.1	5.4
British Columbia.....	23.7	20.5	19.8	38.0	102.0	5.8	2.0	2.0	0.0	1.3	1.2	1.4	4.4
Newfoundland.....	26.7	29.1	33.7	22.6	112.1	8.7	9.7	12.0	5.7	3.5	3.3	5.3	7.3

1 Melville

2 Winter I.

3 Port Bo

4 Gulf of I

5 Gulf of I

6 Gulf of I

7 Assistant

8 Walker

9 Dealy I.

10 Cambria

11 Camden

12 Wellin

13 Port K

14 Sabine I

15 Floeber

16 Discove

17 Discove

18 Discove

19 Lake A

20 Lake A

21 Igloodik

## I

## MAXIMUM Thickness of Salt Water Ice and of Fresh Water Ice.

Observed at various Polar Stations.

Canada and  
Month dur-

now.

November  
December  
Year.

9 9-7 46-8  
5 11-3 56-8  
3 9-8 46-2  
9 7-9 37-3  
0 13-0 54-0  
2 4-3 34-4  
1 5-4 30-3  
4 4-4 18-1  
3 7-3 55-5

Stations.	Latitude North.	Date.	Thickness in Inches.	Remarks.
<i>Salt Water Ice.</i>				
1 Melville Island .....	74 47	May 17, 1820.	90	N. side of Melville Sound.
2 Winter Island .....	66 11	March 7, 1822.	55	N. side of Fox Channel, H. B.
3 Port Bowen .....	73 13	May 4, 1825.	86.5	E. side of Regent Inlet.
4 Gulf of Boothia .....	69 59	April 30, 1830.	90	W. side of Boothia Felix.
5 Gulf of Boothia .....	69 59	April 30, 1831.	72	do do
6 Gulf of Boothia .....	69 59	March 31 1832.	84	do do
7 Assistance Bay. ....	74 40	May 10, 1851.	91	Cornwallis Island.
8 Walker Bay .....	71 35	April 1, 1852.	67.5	McClure Strait.
9 Dealy Island .....	74 56	March 15, 1853.	84	S. side Melville Island.
10 Cambridge Bay .....	69 03	May 1, 1853.	98	N. side Dease Strait.
11 Camden Bay .....	70 08	June 1, 1854.	86	Polar Sea Coast. West of R. Mackenzie.
12 Wellington Channel .....	75 31	March 24, 1854.	68	Ascended by Franklin.
13 Port Kennedy .....	72 01	April 11, 1859.	74	Bellot Strait.
14 Sabine Island .....	74 32	May 21, 1870.	79	E. Coast of Greenland.
15 Floeberg Beach .....	82 27	May 4, 1876.	79.2	Coast of Polar Sea. W. of Robeson Channel.
16 Discovery Harbour .....	81 44	April 30, 1876.	39.2	Lady Franklin Bay. W. side Hall Basin.
17 Discovery Harbour .....	81 44	May 21, 1882.	59.8	do do
18 Discovery Harbour .....	81 44	May 1, 1883.	57.8	do do
<i>Fresh Water Ice.</i>				
19 Lake Alexandra .....	81 40	March 9, 1882.	80	Near Discovery Harbour.
20 Lake Alexandra .....	81 40	May 21, 1883.	67	do do
21 Igloodik .....	69 21	June, 1823.	60.84	W. side of Fox Channel.

## J

GEOGRAPHICAL situation and Climate of various localities in Canada and Newfoundland, from 42 to 82 degrees of North Latitude, and from 52 to 125 degrees of West Longitude.

Localities.	Elevation above the Sea.	Latitudes North.	Longitudes West.	Temperature, Fahrenheit.				Number of Days Rain fell.	Number of Days Snow fell.	Rainfall in inch.	Snowfall in inch.	Percentage of Cloud.
				Summer Mean.	Winter Mean.	Highest.	Lowest.					
	Feet.			Above or Below zero.	Above or Below zero.	Above zero.	Below zero.	Year.	Year.			
1 Anticosti, S. W. Point, P. Q.	20	49 23 45	63 35 46	53.97	+18.23	68.3	-13.9	36.03	58	40	23.07	67.2
2 Anticosti, West Point, do		49 22 12	64 32 05	54.67	+16.63	72.0	-15.0	35.66	46	27		
3 Belle-Ile, Lighthouse, do	426	51 33 0	55 22 15	46.17	+14.23	62.0	-21.0	31.57	96	72	33.01	70
4 Calgary, Alberta District.	3,389	51 0 0	114 0 0	57.90	+17.10	92.0	-39.7	38.04	31	31	7.28	40.4
5 (Charlottetown, P.E.I.	38	46 13 55	63 7 23		+21.57	92.0	-15.0					34
6 (Kilmunnaig, do		46 50 0	64 3 0	60.37	+18.97	84.4	-18.4	40.17	158	47	32.13	66.0
7 Cumberland House, Saskatchewan District. See Note.	900	53 57 33	102 21 46	65.64	+5.73	93.0	-33.51	33.51	15	26	4.53	26.9
8 Edmonton, Alberta District	2,253	53 35 0	113 30 0	57.20	+8.33	88.0	-57.0	31.70	15			
9 Fort Chimo, Hudson's Strait.		58 8 0	68 16 0		-35.60		-43.0		13			
10 Fort Chipewyan, Athabasca Lake	600	58 42 38	111 18 20	53.97	-13.57	83.3	-49.0	24.41	52	67	6.74	78.4
11 Fort Conger, Lady Franklin Bay		81 41 0	64 15 0	34.10	-38.90	74.0	-62.2					
12 Fort Franklin, Great Bear Lake	200	65 11 56	123 12 44	50.20	-17.00	60.24	-31.3	17.50				
13 Fort Norman—Old, Mackenzie River. See Note.		68 40 38	124 44 47	50.87								
14 Fort Rae, Great Slave Lake	301	62 30 0	115 44 0	55.53	-17.60	85.00	-52.00		11	44	4.13	19.2
15 Fredericton, Province of New Brunswick	241	62 7 0	122 0 0	55.53	-14.70	69.30	-24.0	41.34	106	10	25.88	125.5
16 Halifax, do	164	46 3 0	66 38 15	61.90	-19.27	89.3	-24.0	44.18	133	60	31.07	67.3
17 Hamilton, do Nova Scotia	122	44 37 38	63 35 10	61.77	-25.80	84.0	-14.7	46.37	138	60	23.54	44.6
18 Kingston, do Ontario	372	43 34 0	79 37 0	67.63	-25.10	96.3	-21.7	42.97	95	73	21.92	118.1
19 Montreal, do do	307	44 15 15	76 28 30	64.90	-19.20	90.5	-23.6	41.31	122	90	26.88	116.0
20 Moose Factory, Hudson's Bay.	187	45 30 22	73 33 14	63.93	-15.87	92.1	-26.5	35.76	100	83	21.00	115.4
21 Ottawa, Province of Ontario.	236	45 10 0	80 45 0	62.80	-15.17	89.1	-26.5	40.47	103	62	25.29	115.3
22 Port Arthur, do	644	48 24 0	89 28 0	57.33	+8.23	89.5	-35.0	33.77	83	38	18.18	51.0
23 Port Burwell, Hudson's Strait.		60 24 30	64 46 0	58.27	-7.33	67.4	-32.2		7	27		
24 Port Churchill, Hudson's Bay.		58 43 0	94 10 0	40.27	-18.90	82.0	-45.0	16.37	58	32	8.77	35.5
25 Port Laperriere, Entrance, Hudson's Bay.		62 34 10	78 1 0	29.43	-20.57	60.8	-40.5		14	48		
26 Port Moresby, Province of British Columbia		49 17 0	122 52 0	58.57	+10.17	85.0	-17.0	49.68				
27 Quebec City, Quebec.	333	46 48 32	71 12 30	60.47	+15.10	85.5	-27.9	38.81	123	70	26.71	116.9
28 Regina, Assiniboia District.		50 19 0	104 4 0	61.67	+0.53	106.5	-49.5	32.92	26	14	0.65	12.5
29 Sable Island, Atlantic Ocean, N.S.		43 56 24	60 2 50	58.77	-32.67	73.0	-49.0	46.97	105	19	31.32	12.5

30 St. John, Province of New Brunswick.

31 St. John's, Newfoundland.

32 Sydney, Cape Breton, N.S.

33 Toronto, Province of Ontario

23	Port Burwell, Hudson's Strait.....	48 21 0	89 25 0	37 33 0	8 23 0	89 5 0	33 7 0	83 7 0	38 18 18	51 0
24	Port Churchill, Hudson's Bay.....	60 24 30	64 46 0	38 27 0	7 33 0	67 4 0	32 2 0	7 0	27 0	51 0
25	Port Laperrière, Entrance, Hudson's Bay.....	58 43 0	94 10 0	49 27 0	18 90 0	82 0 0	45 0 0	16 37 0	32 0	35 5
26	Port Moody, Province of British Columbia.....	62 34 10	78 1 0	29 43 0	20 37 0	60 8 0	17 5 0	14 0	48 0	35 5
27	Quebec Citadel, Quebec.....	49 17 0	122 32 0	58 57 0	40 10 0	85 0 0	17 0 0	49 48 0	70 26 71	116 9 55
28	Regina, Assiniboia District.....	46 48 32	71 12 30	60 47 0	15 17 0	85 0 0	17 0 0	38 81 123	14 0 65	12 5
29	Sable Island, Atlantic Ocean, N.S.....	50 19 0	104 4 0	61 67 0	0 33 0	106 3 0	16 5 0	32 42 0	19 31 32	12 5
		43 36 24	60 2 30	58 17 0	32 47 0	73 0 0	10 0 0	46 47 0		

30	St. John, Province of New Brunswick.....	116	45 16 42	66 3 43	58 63 0	22 73 0	85 7 0	19 0 0	41 41 141	681 37 63	87 41 57
31	St. John's, Newfoundland.....		47 33 32	52 42 63	50 07 0	258 37 0	80 0 0	0 0 0	42 16 154	42 39 41	73 0 63
32	Sydney, Cape Breton, N. S.....	56	46 8 45	60 12 50	60 47 0	255 37 0	84 0 0	14 0 0	42 50 127	45 39 31	67 0 60
33	Toronto, Province of Ontario.....	350	43 38 20	74 28 35	64 23 0	22 83 0	89 5 0	22 8 0	43 52 112	66 27 72	73 5 61
34	Three Rivers, Province of Quebec.....		46 20 43	72 32 18	64 33 0	26 00 0	91 0 0	24 0 0	44 70 0		
35	Victoria, Vancouver Island, B.C.....	10	48 30 0	123 25 0	58 57 0	40 10 0	85 0 0	17 0 0	49 48 122	6 26 84	14 5
36	Winnipeg, Province of Manitoba.....	764	49 52 0	97 08 0	60 87 0	0 17 0	103 0 0	44 6 0	33 38 85	30 12 57	22 7 49
37	Windsor, do Ontario.....	604	42 0 0	83 20 0	68 23 0	25 37 0	95 2 0	11 0 0	47 40 83	39 23 15	64 3 51
38	Yarmouth, do Nova Scotia.....	57	43 50 0	66 7 25	58 87 0	29 00 0	78 5 0	2 9 0	44 25 147	54 40 49	80 4 58
39	York Factory, Hudson's Bay.....	55	57 0 3	92 28 0	58 17 0	17 19 0	98 5 0	45 3 0	29 73 44	95 25 10	70 1 0
						Av. H.	Av. L.				

N. B.—Summer Temperature, June, July, August. Winter Temperature, December, January, February.

The above is based chiefly on Carpmad's Meteorological Tables for 1886, published in 1888.

New Fort Norman—Latitudes and Longitudes are from Sir John Franklin, Admiral Bayfield, Capt. Gordon, Lieut. Greely and others.

Fort McPherson—Lat. about 67° 26' N.—Long. 134° 57' W. (See W. Ogilvie's Report to Dep. Int., 1888 89.)

Fort Cumberland—Temperature, 30th May, 1840, by John Lee Lewis, Chief Trader, H. B. C., + 43°.

Fort Simpson.—The Latitude and Longitude given above were established 1849-51.

Capt. Lefroy, 1842-44, gives Lat. 61° 52' N.—Long. 121° 25' 2" W.

Franklin, in 1825, gives Lat. 62° 11' N.—Long. 121° 38' W.

# **K** **RIVER YUKON AND MACKENZIE RIVER REGIONS.**

1887-1888.

## MAGNETIC OBSERVATIONS.

Place.	Date.	Latitude.	Longitude.	Declination.	Dip.	Total Force.
<i>Yukon Region:—</i>						
	1887.					
Lake Lyndenman.....	June 25.	59 47.1	135 04.8	32 16.8	77 05.1	12 909
Marsh Lake.....	July 17.	60 21.1	134 17.2	32 46.1	77 32.5	13 076
Cahoon.....	do 24.	60 42.3	135 04.1	30 55.2	77 43.9	12 884
Lewes River.....	Aug. 7.	62 04.5	136 04.0	33 54.8	78 16.4	13 068
Fort Selkirk.....	do 18.	62 47.6	137 24.9	34 17.0	79 08.6	13 049
White River.....	do 20.	63 11.9	139 27.8	34 27.9	78 19.4	12 950
Stewart River.....	do 27.	63 22.3	139 28.5	33 52.8	78 36.6	12 933
Forty-Mile River.....	Sept. 12.	64 25.5	140 31.7	35 01.1	78 46.2	12 885
<i>1888.</i>						
Boundary.....	Jan. 3.	64 41.0	140 54.0	Not read.	78 49.9	13 002
do.....	Feb. 27.	64 41.0	140 54.0	35 45.3	78 49.4	13 012
do.....	do 28.	64 41.0	140 54.0	35 47.5	78 49.4	13 018
Porcupine River.....	May 16.	65 43.0	139 40.0	37 44.3	79 57.3	13 053
do.....	do 20.	65 43.0	139 40.0	37 23.7	79 52.4	12 962
LaPierre's House.....	June 7.	67 23.0	Unknown.	Not read.	81 24.7	12 998
<i>Mackenzie Region:—</i>						
McPherson.....	do 22.	67 26.0	134 57.0	46 00.8	81 48.9	13 205
Good Hope.....	July 13.	66 16.0	128 31.0	41 30.9	82 18.4	13 264
Norman.....	do 29.	64 54.3	125 43.1	33 39.0	82 00.5	13 350
Mackenzie River.....	Aug. 5.	64 26.7	125 03.3	41 34.6	81 56.1	13 360
Simpson.....	do 27.	61 52.0	121 25.2	37 42.3	81 19.2	13 501
Resolution.....	Sept. 20.	61 10.5	113 46.5	38 19.9	82 00.1	13 680
Chipewyan.....	Nov. 22.	58 43.0	111 18.7	27 15.3	81 21.8	13 708
do.....	do 23.	58 43.0	111 18.7	27 09.5	81 22.5	13 729
do.....	do 24.	58 43.0	111 18.7	27 17.9	Not observed.	

## **L.**

### MACKENZIE River Region compared with Ottawa—Magnetic Observations.

#### HOURS OF SUNLIGHT.

	Ottawa.	Chipewyan.	Simpson.	Good Hope.	McPherson.
Latitude.....	45° 26'	58° 43'	61° 52'	66° 16'	67° 26'
	H. M.	H. M.	H. M.	H. M.	H. M.
Hours sunlight May 1.....	14 08	15 34	16 05	17 06	17 30
do June 1.....	15 16	17 36	18 39	21 04	24 00
do do 21.....	15 30	18 44	19 14	22 48	24 00
do July 1.....	15 24	18 36	19 02	22 04	24 00
do Aug. 1.....	14 32	16 16	16 56	18 16	19 24
do do 31.....	13 08	13 52	14 08	14 36	14 44
	Hours.	Hours.	Hours.	Hours.	Hours.
Hours sunlight in May.....	456	514	538	592	706
do June.....	462	549	570	662	720
do July.....	464	530	558	625	671
do August.....	423	467	481	519	521
Totals .....	1,805	2,060	2,147	2,308	2,637

The  
tions, by  
itude, an  
54' west,  
between  
14' north  
12° 12'

Gover

Austria-H

Denmark

Finland

France ..

Germany

Germany

Great B

Canada

Holland.

Norway

Russia..

Russia..

Sweden.

United S

United S

Denmark

## M

## FRANKLIN'S SECOND EXPEDITION.

1825, 1826 and 1827.

## MAGNETIC POLE.

The position of the Magnetic Pole, as computed from Franklin's observations, by Professor Barlow, is in  $69^{\circ} 16'$  north latitude and  $98^{\circ} 8'$  west longitude, and by the observations of Capt. Parry, in lat.  $70^{\circ} 43'$  north, long.  $98^{\circ} 54'$  west, its mean place being in lat.  $70^{\circ}$  north, long.  $98^{\circ} 31'$  west, which is between Port Bowen and Port Franklin, the former being situated in lat.  $73^{\circ} 14'$  north, long.  $88^{\circ} 54'$  west, and the latter in lat.  $65^{\circ} 12'$  north, and long.  $123^{\circ} 12'$  west.

## N

## INTERNATIONAL CIRCUMPOLAR STATIONS.

ESTABLISHED IN 1882-1883.

Government.	Station.	Latitude.	Longitude.	Chief.
Austria-Hungary.	Jan Mayen	$70^{\circ} 59' N.$	$8^{\circ} 28' W.$	Lieut. Emil von-Wohlge-muth.
Denmark	Godthaab.	$64^{\circ} 11' N.$	$51^{\circ} 41' W.$	Asst. A. F. W. Paulsen.
Finland	Sodankyla.	$67^{\circ} 24' N.$	$26^{\circ} 36' E.$	Asst. E. Biese.
France	Orange Bay, Cape Horn.	$53^{\circ} 31' S.$	$70^{\circ} 21' W.$	Lieut. Courcelle-Seneuil.
Germany	Kingawa Fiord, Cumberland Sound	$66^{\circ} 36' N.$	$67^{\circ} 14' W.$	Dr. W. Giese.
Germany	Royal Bay, S. Georgian Islands.	$53^{\circ} 31' S.$	$36^{\circ} 5' W.$	Dr. C. Schrader.
Great Britain and Canada.	Ft. Rae, Head N.E. Branch of Great Slave Lake.	$62^{\circ} 39' N.$	$115^{\circ} 44' W.$	Capt. H. P. Dawson, R.A.
Holland	Dicksonhaven.	$73^{\circ} 30' N.$	$81^{\circ}$	E. Dr. M. Snellen.
Norway	Bossekop.	$69^{\circ} 56' N.$	$23^{\circ}$	E. Asst. A. S. Steen.
Russia	Lena Delta.	$73^{\circ}$	$124^{\circ} 40' E.$	Lieut. Jurgens.
Russia	Nova Zembla, Karmaluke Bay	$72^{\circ} 30' N.$	$53^{\circ}$	E. Lieut. Andrejew.
Sweden	Spitzbergen.	$78^{\circ} 28' N.$	$15^{\circ} 45' E.$	Candidate N. Ekholm.
United States.	Point Barrow.	$71^{\circ} 18' N.$	$156^{\circ} 24' W.$	Lieut. P. H. Ray, 8th Inf.
United States.	Lady Franklin Bay.	$81^{\circ} 44' N.$	$64^{\circ} 45' W.$	Lieut. A. W. Greeley, 5th Cav.
Denmark	Kara Sea	(About $71^{\circ} 0' N.$ )	$64^{\circ} 0' E.$	Lieut. A. P. Havggaard.

\*Estimated.

Total  
Force.

1 12 909  
5 13 976  
9 12 884  
4 13 968  
6 13 949  
4 12 950  
6 12 933  
2 12 885

9 13 962  
4 13 912  
4 13 918  
3 13 953  
4 12 962  
7 12 998

9 13 265  
4 13 264  
5 13 350  
1 13 360  
2 13 501  
1 13 680  
8 13 768  
5 13 729  
observed.

rvations.

McPherson.

67' 26'  
H. M.  
17 30  
24 00  
24 00  
24 00  
19 24  
14 44

Hours.  
796  
720  
6  
5.

2,637



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PART V.

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NATURAL RESOURCES.

PRODUCTS AND TRADE. &c.

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## IMPORTS OF COAL INTO THE DOMINION DURING 1885-86-87-88.

Provinces.	1885.	1886.	1887.	1888.
	Tons.	Tons.	Tons.	Tons.
Ontario.....	1,492,459	1,587,372	2,180,356	2,096,512
Quebec.....	355,158	344,150	413,370	431,017
Nova Scotia.....	25,516	20,046	23,040	24,346
New Brunswick.....	45,500	43,767	36,435	55,789
Manitoba.....	12,200	3,497	1,834	2,816
British Columbia.....	870	615	777	355
Prince Edward Island.....	1,990	1,783	2,673	2,518
Total.....	1,933,693	2,001,230	2,658,485	2,613,353

## COAL PRODUCTION OF THE PRINCIPAL COUNTRIES OF THE WORLD.

For the most part in 1887.

Country.	Year.	Quantity.	Country.	Year.	Quantity.
		Tons.			Tons.
Great Britain.....	1887	162,119,812	Spain.....	1886	1,000,000
United States.....	1887	116,049,604	India, Bengal.....	1886	951,001
Germany.....	1886	73,637,596	Japan.....	1884	900,000
France.....	1887	21,402,949	New Zealand.....	1886	534,353
Austria and Hungary.....	1886	20,779,441	Italy.....	1886	314,145
Belgium.....	1887	19,216,031	Sweden.....	1885	264,000
Russia.....	1886	4,650,000	Borneo.....	1884	5,866
Australia.....	1886	2,830,175	Other countries.....	1887	5,000,000
Canada.....	1887	2,368,890			
			Total.....		432,023,863

The following table shows the coal produced by the principal countries of the world, for the most part in 1888:—

Country.	Year.	Quantity.
		Tons.
Great Britain.....	1888	169,935,219
United States.....	1888	126,819,406
Germany.....	1888	81,863,811
France.....	1888	22,951,940
Austria and Hungary.....	1886	20,779,441
Belgium.....	1888	19,185,181
Russia.....	1886	4,650,000
Australia.....	1886	2,830,175
Canada.....	1888	2,658,134
Spain.....	1887	977,359
Italy.....	1887	243,325
Sweden.....	1887	300,000
Other countries.....	1888	10,000,000
Total.....		457,705,882

Long tons of 2,240 pounds are used with reference to Great Britain, the United States, Australia, India, New Zealand and Russia, and the metric ton 2,204 pounds for continental countries. The aggregate increase in Great Britain and the United States as compared with 1887 was 18,585,209 tons.

Nova Scotia.  
British Colum.  
North-West T.  
New Brunswi

PRO

1871.....  
1872.....  
1873.....  
1874.....  
1875.....  
1876.....  
1877.....  
1878.....  
1879.....  
1880.....  
1881.....  
1882.....  
1883.....  
1884.....  
1885.....  
1886.....  
1887.....  
1888.....

British Co  
Manitoba  
New Brun  
Nova Scot  
Ontario  
Prince Ed  
Quebec

N.B.  
partly d  
valuable

# PRODUCTION OF COAL IN CANADA, 1888.

	Tons of 2,000 lbs.	Value.
1888.		\$
Nova Scotia.....	1,989,263	3,108,224
British Columbia.....	548,017	1,957,204
North-West Territories.....	115,124	183,354
New Brunswick.....	5,730	11,050
Total.....	2,658,134	5,259,832

## PRODUCTION OF COAL IN NOVA SCOTIA AND BRITISH COLUMBIA, 1874 TO 1888.

Year.	Nova Scotia.	British Columbia.	Total.
	Tons.	Tons.	Tons.
1874.....	977,446	81,000	1,058,446
1875.....	874,905	110,000	984,905
1876.....	794,803	139,000	933,803
1877.....	848,395	154,000	1,002,395
1878.....	863,081	171,000	1,034,081
1879.....	882,863	241,000	1,123,863
1880.....	1,156,635	268,000	1,424,635
1881.....	1,259,182	228,000	1,487,182
1882.....	1,529,708	282,000	1,811,708
1883.....	1,593,259	213,000	1,806,259
1884.....	1,556,010	394,070	1,950,080
1885.....	1,514,470	365,000	1,879,470
1886.....	1,682,924	326,636	2,009,560
1887.....	1,871,338	413,360	2,284,698
1888.....	1,989,263	548,017	2,537,280
Total.....	19,394,282	3,934,083	23,328,365

## FISHERIES OF CANADA, 1889.

PROVINCES.	Value.
British Columbia.....	\$
Manitoba and North-West Territories.....	3,348,067
New Brunswick.....	167,679
Nova Scotia.....	3,067,039
Ontario.....	6,346,722
Prince Edward Island.....	1,963,122
Quebec.....	886,430
	1,876,197
Home consumption—Estimated at.....	17,655,256
Total production, exclusive of the catch by foreign fishermen.....	13,400,000
	31,055,256

N.B.—The above represents the "catch" from less than half of the Canadian fisheries, which are yet partly developed, especially in British Columbia on the Pacific Coast, where the Fisheries are very valuable and extensive.

# FOREST.

## FOREST PRODUCTION OF CANADA—CENSUS OF 1881.

PROVINCES.	TOTAL QUANTITY OF SQUARE TIMBER PRODUCED.		TOTAL NUMBER OF LOGS PRODUCED.		NUMBER OF MASTS AND SPARS.		M. S. OF STAVES.		CORDS OF LATH- WOOD, TANBARK AND CORDWOOD.		TOTAL VALUE AT PRICES ESTIMATED.	
	Exc. Estimated Value per cub. ft.	\$1.00 Estimated Value per Log.	\$20.00 Est. Value each.	\$10.00 per M.	\$2.00 per Cord	\$	cts.					
British Columbia.....	24,043,877	3,281,143	900	148	89,880	9,491,352	25					
Manitoba.....	896,445	254,775	10	10	220,663	919,112	25					
North-West Territories.....	109,873	577,896	57	2	38,389	163,322	25					
New Brunswick.....	3,144,323	5,658,469	54,406	955	840,698	9,223,615	75					
Nova Scotia.....	4,932,005	2,748,378	8,703	13,147	633,512	5,393,933	25					
Ontario.....	51,432,562	22,567,280	23,721	22,857	5,531,600	47,316,610	50					
Prince Edward Island.....	910,200	197,343	136	1,177	161,062	762,707	00					
Quebec.....	25,667,577	13,582,707	104,248	3,585	3,956,749	30,633,969	25					
Total Forest Production.....	111,636,862	48,347,491	192,241	41,881	11,491,963	103,504,762	50					

The above is intended for comparison with next census to be taken in 1891.

GOLD

Year.

1862.....
1863.....
1864.....
1865.....
1866.....
1867.....
1868.....
1869.....
1870.....
1871.....
1872.....
1873.....
1874.....
1875.....
1876.....
1877.....
1878.....
1879.....
1880.....
1881.....
1882.....
1883.....
1884.....
1885.....
1886.....
1887.....
1888.....

Total.

Antimony  
Asbestos...  
Bricks...  
Building  
Cement...  
Charcoal...  
Coal...  
Coke...  
Copper...  
Feldspar...  
Fertilizer...  
Fire-clay...  
Flag-stone...  
Glass...  
Gold...  
Granite...  
Graphite...  
Grindstone...  
Gypsum...  
Iron...  
Iron ore...  
Lead...  
Lime...  
Limestone...

N.B.  
Geologic

## GOLD PRODUCTION IN CANADA, 1862 TO '888, INCLUSIVE.

Year.	British Columbia.	Nova Scotia.	Quebec.	North-West Territories, including Yukon District.	Ontario.	Total.
	\$	\$	\$	\$	\$	\$
1862.....	4,246,266	141,871				4,600,585
1863.....		272,448				
1864.....	3,735,850	390,349				4,126,199
1865.....	3,491,205	496,357				3,987,562
1866.....	2,662,106	491,491				3,153,597
1867.....	2,480,868	532,563				3,013,431
1868.....	2,372,972	400,555				2,773,527
1869.....	1,774,978	348,427				2,123,405
1870.....	1,336,956	387,392				1,724,348
1871.....	1,799,440	374,972				2,174,412
1872.....	1,610,972	255,349				1,866,321
1873.....	1,305,749	231,122				1,536,871
1874.....	1,844,618	178,244				2,022,862
1875.....	2,474,904	218,629				2,693,533
1876.....	1,786,648	233,585				2,020,233
1877.....	1,608,182	329,205	72,067			1,949,444
1878.....	1,275,264	245,253	17,937			1,538,394
1879.....	1,290,058	268,328	32,972			1,591,358
1880.....	1,013,827	257,823	33,174			1,304,824
1881.....	1,046,737	209,755	56,661			1,313,153
1882.....	954,085	275,090	17,093			1,246,268
1883.....	794,252	301,207	17,787			1,113,246
1884.....	736,165	313,554	8,720			1,058,439
1885.....	713,738	432,971	2,120			1,148,829
1886.....	903,651	455,564	3,981			1,363,196
1887.....	694,559	413,631	1,604			2,472,973
1888.....	616,731	436,939	3,740	62,100	6,700	1,126,210
Total.....	44,570,721	8,892,675	207,846	62,100	6,700	55,103,220

## MINERALS.

## CANADA'S MINERAL PRODUCTS, 1889.

	\$		\$
Antimony.....	1,100	Manganese ore.....	31,814
Asbestos.....	424,350	Marble and serpentines.....	980
Bricks.....	1,252,667	Mineral paints.....	15,280
Building stone.....	899,105	Mineral water.....	37,360
Cement.....	69,790	Miscellaneous clay products.....	239,385
Charcoal.....	83,573	Petroleum.....	672,978
Coal.....	5,570,742	Phosphate.....	312,182
Coke.....	155,043	Pig iron.....	499,859
Copper.....	855,424	Platinum.....	4,500
Fedapar.....	5,100	Pyrites.....	396,212
Fertilizers.....	26,606	Salt.....	110,387
Fire-clay.....	4,800	Sand and gravel (exports).....	69,506
Flag-stones.....	1,400	Silver.....	343,848
Glass.....	150,000	Slate.....	119,160
Gold.....	1,116,145	Soapstone.....	1,020
Granite.....	78,624	Steel.....	17,822
Graphite.....	1,630	Sulphuric acid.....	148,482
Grindstones.....	30,063	Tiles.....	130,871
Gypsum.....	193,658	The estimated value of mineral products not returned, principally nickel, iron, mica and structural materials, was.....	1,933,752
Iron.....	2,210,062		
Iron ore.....	151,640		
Lead.....	5,863		
Lime.....	265,208		
Limestone, for flux.....	21,909	Making a total of.....	19,500,000

N.B.—All the returns of minerals had not been received when this statement was prepared by the Geological Branch of the Department of the Interior.

## EXPORTATIONS.

ABSTRACT of the Total Value of Goods Exported from the Provinces of Canada, 1888-89.

Provinces.	Fisheries.	Mine.	Forest.	Animals and their Produce.	Agricultural Products.	Manufactures.	Miscellaneous Articles.	Total Exports.
	§	§	§	§	§	§	§	§
British Columbia...	993,623	2,377,052	449,026	397,685	14,831	46,976	55,113	4,334,306
Manitoba.....	71,264	314	49	545,365	86,443	61,547	17,624	782,606
New Brunswick...	705,117	105,692	4,958,679	346,215	171,444	362,759	50,992	6,700,898
N.-W. Territories...								
Nova Scotia.....	4,383,582	674,035	1,710,653	396,728	693,042	928,083	46,158	8,832,281
P. E. Island.....	221,210	275	8,011	464,915	214,805	97,661	1,896	978,773
*Ontario.....	397,885	507,436	8,478,610	6,802,627	8,793,288	2,141,882	494,164	27,615,892
*Quebec.....	557,054	1,008,309	864,228	15,740,418	7,218,296	1,290,180	216,928	34,895,568
Total.....	7,329,735	4,673,293	24,469,256	24,693,953	17,192,149	4,899,088	882,875	84,140,239
* Add coin and bullion exported to Great Britain.....								17,075
do do United States.....								1,949,276
* Add estimated amount short returned at inland ports and exported to United States.....								361,751
								*2,328,102
† Add estimated amount short returned to inland ports and exported to United States.....								2,708,901
† Add coin and bullion exported to the United States.....								11,905
								†2,720,806
								89,189,167

FEDERAL

Customs...  
Excise...  
Post Office...  
Public Works...  
Miscellaneous...

Revenue...  
Expenditure...

NOTE.—  
\* Statistical  
Ottawa, during  
preceding year.

## TRADE, ETC.

PERIOD.	IMPORTS.		EXPORTS.		PUBLIC DEBT.		
	Total Value.	Value Entered for Consumption.	Total Value.	Value Entered for Consumption.	Gross Debt.	Assets.	Net Debt.
	§	§	§	§	§	§	§
Year ended 30th June, 1868...	73,459,644	71,985,306	57,567,888	96,896,666	21,139,531	75,757,135	
do do 1869...	70,415,165	67,402,170	60,474,781	112,361,998	36,502,679	75,859,319	
do do 1870...	74,814,339	71,237,603	73,573,490	115,993,706	37,783,964	78,209,742	
do do 1871...	96,092,971	86,947,482	74,173,618	115,492,682	37,786,165	77,706,517	
do do 1872...	111,430,527	107,709,116	82,639,663	122,400,179	40,213,107	82,187,072	
do do 1873...	128,011,281	127,514,594	89,789,922	129,743,432	29,894,970	99,848,462	
do do 1874...	128,213,582	127,404,169	89,351,928	141,163,551	32,838,586	108,324,965	
do do 1875...	123,070,283	119,618,657	77,886,979	151,663,401	35,655,023	116,008,378	
do do 1876...	93,210,346	94,723,218	80,966,435	161,204,687	36,653,173	124,551,514	
do do 1877...	99,327,962	96,300,483	75,875,393	174,675,834	41,440,525	133,235,309	
do do 1878...	93,081,787	91,199,577	79,323,667	174,957,268	34,595,199	140,362,069	
do do 1879...	81,964,427	80,341,608	71,491,255	179,483,871	36,493,683	142,990,188	
do do 1880...	86,489,747	71,782,349	87,911,458	194,634,440	42,182,852	152,451,588	
do do 1881...	105,330,840	91,611,604	98,290,823	199,861,537	44,965,757	155,395,780	
do do 1882...	119,419,500	112,648,927	102,137,203	205,365,251	51,703,601	153,661,650	
do do 1883...	132,254,022	123,137,019	98,085,804	202,159,104	43,692,389	158,466,715	
do do 1884...	116,397,043	108,180,644	91,406,496	242,482,416	60,320,565	182,161,851	
do do 1885...	108,941,486	102,710,019	89,238,361	264,703,607	68,295,915	196,407,692	
do do 1886...	104,424,561	99,602,694	85,251,314	273,164,341	50,005,234	223,159,107	
do do 1887...	112,892,236	105,639,428	89,515,811	273,187,626	45,872,851	227,314,775	
do do 1888...	110,894,630	102,847,100	90,203,000	284,513,842	49,982,483	234,531,358	
do do 1889...	115,224,931	109,673,447	89,189,167	287,722,063	50,192,021	237,530,042	

## CANADA.

FEDERAL FINANCES for the financial Year ended 30th June, 1890, and Revenue for 1888 and 1889.

Miscellaneous Articles	Total Exports.			
		1888.	1889.	1890.
\$	\$	\$	\$	\$
55,113	4,334,306	22,105,926	23,726,783	23,971,351
17,624	782,696	6,071,486	6,886,738	7,601,426
50,992	6,700,898	2,379,241	2,220,503	2,357,388
46,158	8,832,281	3,556,101	3,642,557	3,800,110
1,896	978,773	1,795,709	2,306,289	2,131,093
94,164	127,615,892			
216,928	34,895,503			
82,875	84,140,230			
17,675				
49,276				
61,751				
	*2,328,102			
08,901				
11,905				
	+9,720,866			
	89,189,167			
Totals.....		35,908,463	38,782,870	39,861,368
Revenue.....				39,861,368
Expenditure.....				35,857,130
Surplus.....				4,004,238

NOTE.—For fuller information respecting the products and trade, etc., of Canada, herein given, see the "Statistical Year Books of Canada," compiled by S. C. D. Roper, for the Department of Agriculture, at Ottawa, during the past five years, down to the date of the 31st May, 1890, and from which most of the preceding tables, of Part V., have been taken.

## DEBT.

ts. Net Debt.

\$	\$
531	75,757,135
679	75,859,319
964	78,209,742
165	77,706,517
107	82,187,072
970	99,848,462
586	108,324,965
023	116,008,378
173	124,551,514
525	133,235,309
199	140,362,069
683	142,990,188
852	152,451,588
757	155,395,780
601	153,661,650
389	158,466,715
565	182,161,851
915	196,407,692
234	223,159,107
851	227,314,775
483	234,531,358
021	237,530,042

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PART VI.

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AGRICULTURAL STATISTICS.

1605--1888.

And Northern limit of Production, etc., so far as  
ascertained, in Europe and in Canada.

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## AGRICULTURE IN CANADA.

From the discovery of Canada by Cartier in 1534 to the beginning of the 17th century, little attention was given to agriculture. The fur trade was the greatest attraction of the colonists. Champlain in 1603, was the first to understand the urgency of cultivation as the principal basis of the settlement of the country. Speaking of the surroundings of Quebec, he states:—"The lands are covered with oaks, cypress, firs, birch, wild fruit shrubs and vines, which in my opinion would yield as much as those of France if they were cultivated." (Sulte).

In 1604 Champlain selected Ste. Croix Island, N.B.; he sowed wheat without reaping it. The terrible havoc made by scurvy amongst the inhabitants decided their removal to Port Royal, opposite Goat Island, on north side of Annapolis Basin. This happened in 1605. Port Royal must be considered the cradle of modern agriculture in Canada. Poutrincourt, Lescarbot and Louis Hébert, the companions of De Monts, always gave good example to the settlers. They were learned men, who cleared land, sowed seed and cultivated their fields.

1607. A water power grist-mill was erected at Port Royal—superseding the laborious "querne." In the same year De Monts presented the King of France, in Paris, with samples of wheat, barley, rye and oats grown at Port Royal, which was afterwards abandoned.

1608. Champlain cleared land at Cape Diamond, Quebec. He sowed wheat on the 1st and rye on the 15th of October.

1609. Champlain reports his vegetable garden flourishing. Corn wheat and oats splendid.

1610. Poutrincourt resumed agricultural pursuits at Port Royal.

1611. Champlain cleared land and he sowed seeds at Pointe à Callières at Montreal; the growth was very satisfactory.

1612. The quantity of grain raised at Port Royal was insufficient for the Colony—gaunt eyed famine stalked forth amongst the people. A root called "chiben," artichokes was the chief sustenance of the famine stricken colony during the winter.

1613. Champlain refers to wheat grown within the precincts of what is now the City of Quebec. The destruction of Port Royal by Argall of Virginia this year, ended, for a time, the agricultural prospects of that place.

1617. Louis Hébert, already referred to, who had gone to France from Port Royal on account of its invasion by Argall in 1613, arrived at Quebec. He was the first farmer in Canada. He died in 1626. His daughter Anne, who married Etienne Couillard at Quebec in 1617, was the first woman to enter hymen's bonds in Canada.

1628. The first ploughing in Canada was done by oxen for Mrs. Hébert, the widow of Louis. The Hébert farm was where the seminary and cathedral now stand.

Kirk or Kirke burned the farm buildings at Cape Tourmente, 30 miles below Quebec. Forty or 50 head of cattle perished.

1629. Quebec taken by the English.

1632. Quebec restored to France.

1664. New France produced more wheat than they required.

1666. Tal  
encou  
and l  
1667. Tal  
flour.

AGRICULT

Year.

1667. ....  
1679. ....  
1681. ....  
1685. ....  
1688. ....  
1692. ....  
1695. ....  
1698. ....  
1706. ....  
1719. ....  
1720. ....  
1721. ....  
1734. ....  
1765. ....

(1.) Incl  
(2.)  
(3.)  
(4.)  
(4.)  
(4.) 45,9  
(5.) Inc  
(6.) Inc  
lbs. of flax,  
(7.) Inc  
of flax, 2,22

Nev  
Rivers a  
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NOTE.

1666. Talon, the Intendant, exported peas, boards and fish to the West Indies; encouraged the cultivation of hemp and flax and the manufacture of ropes and linens.

1667. Talon wrote that New France could then provide the West Indies with flour, fish, wood and oil.

AGRICULTURAL Census of New France, 1667-1765, as given in Census of the Dominion for the Year 1871.

Year.	Arpents under Culture.	Arpents in Pasture.	Wheat.	Oats.	Other Grains.	Horses.	Horned Cattle.	Sheep.	Swine.
				Bush.					
1667. ....	11,448						3,107	85	
1679. ....	21,900					145	6,983	719	
1681. ....	24,827					94	6,898	572	
1685. ....	24,790					156	7,474	787	
1688. ....	28,663		100,971		28,554	218	7,719	1,061	3,701
1692. ....	26,469	2,642	89,762	13,810	(1) 16,807	400	7,456	903	3,045
1695. ....	28,110	3,505	129,154	13,955	(2) 27,200	580	9,181	918	5,333
1698. ....	32,524	5,159	160,978	21,797	(3) 33,552	684	10,209	994	5,147
1706. ....	43,671					1,872	14,191	1,820	
1719. ....	63,632	8,018	234,566	50,416	(4) 52,865	4,024	18,241	8,435	14,418
1720. ....	61,357	10,132	134,439	62,033	(5) 55,490	5,270	24,866	12,175	17,944
1721. ....	62,145	12,203	282,700	64,035	(6) 60,190	5,603	23,388	13,823	16,250
1734. ....	163,111	17,657	737,892	163,988	(7) 71,234	5,056	33,179	19,815	23,646
1765. ....						13,488	78,015	28,022	28,562

- (1.) Including 4,597 bushels of corn.  
 (2.) do 6,490 do  
 (3.) do 10,251 do  
 (4.) do 6,487 do  
 (4.) do 46,403 bushels of peas.  
 (4.) 45,970 lbs. of flax and 5,080 lbs. of hemp not included.  
 (5.) Including corn, 4,159 bush.; peas, 55,331. Not including 67,264 lbs. of flax and 1,418 lbs. of hemp.  
 (6.) Including 4,585 bush. of barley, 57,400 bush. of peas and 205 bush. of corn. Not including 54,650 lbs. of flax, 48,038 lbs. of tobacco and 2,100 lbs. of hemp.  
 (7.) Including 3,462 bush. of barley, 63,549 bush. of peas, 5,223 bush. of corn. Not including 92,246 lbs. of flax, 2,221 lbs. of hemp and 166,054 lbs. of tobacco.

New France, in 1765 comprised the three districts of Quebec, Three Rivers and Montreal, containing, on the north shore of the St. Lawrence, from Ile-aux-Coudres up to Cedars 58 parishes, and on the south side, from La-Prairie down to Gaspé 58 parishes.

After 1765 the name of New France was changed to that of the "Province of Quebec." In 1791 it was changed, to Lower Canada. In 1841 to Canada East and in 1867 the old name of the "Province of Quebec" was restored.

NOTE.—For further details, see Part IV.

## PROVINCE OF QUEBEC.

### Agricultural Statistics from the conquest to 1961.

YEAR.	Arpent under Culture.	Pasture.	Wheat.	Barley.	Oats.	Peas.	Rye.	Buck Wheat.	Corn.	Other Grains.	Potatoes.	Horses.	Horned Cattle.	Sheep.	Swine.
			Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.				
1784.	1,569,818											30,146	108,591	84,686	79,461
1827.	1,002,198	1,944,397 Arpents Occupied.										142,432	405,027	829,122	241,735
1831.	2,066,213	4,981,823 Arpents Occupied.	3,407,756		3,292,247	984,758				1,074,866	7,357,416	116,686	388,766	543,343	283,137
1844.	2,671,768 Acres. Unimproved.	4,038,521 Acres Unimproved.	942,829	1,195,447	7,238,744	1,219,413	333,440	374,801	141,000		9,918,863	146,726	469,851	602,821	197,935
1851.	3,605,167	4,508,421	3,073,943	495,766	8,977,400	1,415,136	325,422	532,412	401,284		4,429,016	148,629	591,562	648,685	251,794
1861.	4,804,235	5,571,183	2,654,354	2,281,674	17,551,246	2,648,777	844,192	1,250,125	334,861		12,770,471	248,515	816,973	682,829	286,400

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YEAR.	
1671. ....	4
1686. ....	
1693. ....	
1695. ....	
1698. ....	
1701. ....	

# PROVINCE OF NOVA SCOTIA.

Called Acadia by the French ; from 1710 to 1763 it comprised only the Peninsula. From 1763 it included Ile St.-Jean (Prince Edward Island) ; Cape Breton (Ile-Royale) and New Brunswick, till 1784. In 1819 Cape Breton was reunited to Nova Scotia.

We have already mentioned the foundation of Port Royal, Acadia, in 1605, its desertion in 1607, its reoccupation in 1610 and its destruction by Argall in 1613, during a time of peace between France and England. The following century was marked by the Province passing three times under the Crown of France and four times under that of England. The Treaty of Utrecht, 1713, gave Acadia to England for ever. Agriculture could not increase greatly when the true settlers composing the poorer class suffered the greatest losses by these numerous wars and changes of authority. The census of 1871, however, contains the following agricultural statistics :—

YEAR.	Acadia.	Arpents under Culture.	Arpents in Pasture.	Horned Cattle.	Sheep.	Swine.	Goats, &c.
1671. ....	Acadia .....	429	.....	866	407	.....	36
1686. ....	do .....	896	.....	986	759	608	
1693. ....	do .....	1,832	.....	1,648	1,910	1,164	
1695. ....	River St. John	166	73	38	..	116	361 poultry.
1698. ....	Beaubassin & Port Royal	1,572	.....	1,334	1,314	746	1,616 fruit trees.
1701. ....	Beaubassin } Mines Basin }	1,136	.....	1,807	1,796	1,173	

PROVINCE OF NOVA SCOTIA.  
AGRICULTURAL STATISTICS.  
1827 to 1861.

YEAR.	Acres under Culture.	Dyked marsh	Wheat.	Barley.	Rye.	Oats.	Peas and Beans.	Buck-wheat.	Corn.	Potatoes.	Various grains.	Horses.	Horned Cattle.	Sheep.	Swine.
1827...	292,009	.....	152,861	.....	.....	.....	.....	.....	.....	3,278,280	448,627	12,951	110,818	173,731	71,482
1851.....	799,310	40,012	297,157	196,097	61,438	1,384,437	21,638	170,301	37,475	1,986,789	.....	28,780	243,713	282,180	51,533
1861.....	971,816	35,487 Salt marsh 20,729	312,081	293,578	59,706	1,978,137	Peas. 21,333	195,340	15,529	3,824,814	.....	41,927	262,297	332,653	53,217

N.B.—The Loyalists and British immigrants composed the majority of the population.

PROVINCE OF NEW BRUNSWICK.  
(Part of Acadia up to 1784.)  
AGRICULTURAL STATISTICS,  
1840 to 1861.

Year.	Acres in in Culture.	Acres in in Pasture.	Wheat.	Barley.	Oats.	Rye.	Peas.	Buck- wheat.	Corn.	Potatoes.	Other Roots.	Hay. Tons.	Horses.	Horned Cattle.	Sheep.	Swine.
1840.....	435,861												18,282	90,360	141,053	71,915
1851.....	643,954	Unimproved 2,902,416	206,635	74,300	1,411,164		42,663	680,004	62,225	2,792,394	587,683	225,093	22,044	112,218	168,038	47,932
1861.....	885,108		279,775	94,679	2,656,883	57,594	25,449	904,381	17,420	4,041,339	684,954	324,160	35,347	161,462	214,092	73,495

# PROVINCE OF ONTARIO

From 1774 to 1791 formed part of the Province of Quebec; it was called Upper Canada till 1841, Canada West till 1867 and Ontario since that date; in 1784 the number of Loyalists estimated having settled in Ontario was 10,000.

Year.	Acres Under Cultivation.	Uncultivated.	Wheat.	Barley.	Oats.	Peas.	Buckwheat.	Rye.	Corn.	Potatoes.	Other Roots.	Hay.	Horses.	Horned Cattle.	Sheep.	Swine.
1826...	599,744	2,753,969	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bush.	Bushels.	Bushels.	Bushels.	Tons.	23,866	Undetermined.	do	do
1827...	645,792	2,933,762											25,228	do	do	do
1828...	717,553	3,008,777											28,338	do	do	do
1831...	818,416	3,569,361											33,428	do	do	do
1832...	916,357	3,800,015											36,822	do	do	do
1833...	988,956	4,165,255											40,254	do	do	do
1834...	1,004,779	4,122,285											43,217	do	do	do
1835...	1,300,785	4,393,434											48,118	do	do	do
1836...	1,283,709	4,805,985											55,064	do	do	do
1837...	1,440,505	4,840,106											57,250	do	do	do
1839...	1,556,677	5,113,406											66,220	do	do	do
1840...	1,713,163	5,298,543											72,686	do	do	do
1841...	1,811,431	5,057,073											75,316	do	do	do
1842...	1,751,528	Occupied.	3,221,989	1,031,334	4,788,167	1,191,550	352,786	292,969	691,359	8,080,402			113,647	504,963	575,730	384,366
1848...	1,780,157	8,413,591	7,558,773	515,727	7,055,730	1,752,834	432,573	446,293	1,137,555	4,751,346	Turnips.		151,389	565,845	833,807	484,241
1851...	3,705,523	9,828,655	12,682,550	625,452	11,395,467	3,027,681	679,635	472,429	1,633,365	4,973,235	3,097,818	693,727	201,676	744,264	967,168	571,496
1861...	6,051,609	Occupied.	24,620,425	2,821,962	21,220,874	9,601,396	1,248,637	973,181	2,256,290	15,325,920	19,244,568	861,844	377,681	1,015,278	1,170,225	776,001

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1871...

## PROVINCE OF MANITOBA.

(Called Assiniboia till 1870.)

YEAR.	LANDS UNDER CUL- TIVATION.	CATTLE.			
		Acres.	Horses.	Horned Cattle.	Sheep. Swine.
1831.....	2,152	410	2,953	362	
1834.....	3,230	630	5,003	2,053	
1838.....	3,862½	1,113	5,340	1,698	
1840.....	4,041	1,292	5,915	2,149	
1843.....	5,003	1,570	6,201	1,976	
1846.....	5,380	2,360	6,217	3,800	
1849.....	6,392	2,085	6,014	1,565	
1856.....	8,806	2,681	9,615	4,929	

## PROVINCE OF BRITISH COLUMBIA.

(Previously called New Caledonia—British Columbia, 1858-1871.)

The returns of stock and crops published in 1870 cannot be relied on; they being evidently erroneous. The mines were the great attractions.\*

\* Census 1871.

## PROVINCE OF PRINCE EDWARD ISLAND.

(Called Ile-St.-Jean.)

In 1763 annexed to Nova Scotia and separated in 1770. The name changed to Prince Edward Island in 1798-1800.

Year.	Acres Cultivated.	Acres Occupied.	Horses.	Horned Cattle.	Sheep.	Swine.
1861.....	118,417	306,055	5,800	18,951	33,358	10,962
1871.....	445,103	1,018,240	25,329	62,984	147,364	52,514

## AGRICULTURAL STATISTICS of the Dominion of Canada.

PROVINCES.	Acres under Cultivation.	Acres Occupied.	Acres in Wheat.	Wheat. Bushels.	Oats. Bushels.	Rye. Bushels.	Peas and Beans. Bushels.	Buckwheat. Bushels.	Corn. Bushels.
1871.									
Ontario .....	6,587,498	16,161,676	1,365,872	S. 7,891,989 F. 6,341,400	22,138,958	547,609	7,761,470	585,158	3,148,467
Quebec .....	3,714,304	11,025,786	242,726	S. 2,083,921 F. 221,155	15,116,262	458,970	2,284,635	1,676,078	603,356
New Brunswick .....	778,461	3,827,731	18,884	S. 203,592 F. 1,319	3,044,134	23,792	45,656	1,231,091	27,658
Nova Scotia .....	790,155	5,031,217	19,299	S. 224,410 F. 3,087	2,190,099	33,987	35,203	234,157	23,349
Totals .....	11,820,358	36,046,410	1,646,781	16,723,873	42,480,453	1,064,358	10,126,364	3,726,484	3,802,830
1881.									
Ontario .....	8,370,266	19,259,969	1,949,135	27,406,091	40,200,429	1,598,871	9,434,872	841,649	8,006,782
Quebec .....	4,147,984	12,625,877	224,678	2,019,004	19,900,225	430,242	4,170,456	2,041,670	888,169
New Brunswick .....	849,678	3,809,621	40,831	521,956	3,297,534	18,268	43,121	1,587,223	18,159
Nova Scotia .....	942,010	5,396,382	45,045	529,251	1,873,113	47,567	37,220	339,718	13,532
Prince Edward Island .....	467,211	1,126,653	41,942	546,986	3,538,219	307	3,169	90,458	2,603
Manitoba .....	290,264	2,384,337	51,293	1,033,673	1,270,268	1,203	8,991	320	2,516
North-West Territories .....	83,657	441,255	5,678	119,655	89,952	240	1,291	50	1,948
British Columbia .....	21,214	314,107	7,952	173,658	23,611	482	50,542	59	1,433
Totals .....	15,112,284	45,358,141	2,306,554	32,350,939	70,493,131	2,067,180	13,749,662	4,901,147	9,025,142

AGRICULTURAL STATISTICS of the Dominion of Canada—Concluded.

CATTLE.

## AGRICULTURAL STATISTICS OF THE DOMINION OF CANADA—Concluded.

PROVINCES.	Barley. Bushels.	Acres in Potatoes.	Potatoes. Bushels.	Roots. Bushels.	Hay. Tons.	CATTLE.			
						Horses.	Horned Cattle.	Sheep.	Swine.
1871.									
Ontario .....	9,461,233	174,640	17,138,534	25,162,446	1,804,476	489,001	1,403,174	1,514,914	874,664
Quebec .....	1,668,208	128,185	18,068,323	1,469,293	1,225,640	253,377	683,462	1,007,800	371,452
New Brunswick .....	70,547	47,689	6,562,355	702,079	344,793	44,786	163,687	234,418	65,805
Nova Scotia .....	296,050	23,349	5,569,975	618,978	443,732	49,579	273,967	398,377	54,162
Totals .....	11,496,038	373,863	47,330,187	27,892,736	3,818,641	836,743	2,524,290	3,155,509	1,366,083
1881.									
Ontario .....	14,279,841	181,394	18,994,559	40,335,943	2,038,659	590,298	1,702,167	1,350,178	700,922
Quebec .....	1,751,539	123,082	14,872,287	3,623,380	1,612,104	273,852	949,333	889,833	329,199
New Brunswick .....	84,183	51,362	6,961,016	1,149,379	414,046	52,975	212,560	221,163	53,087
Nova Scotia .....	228,748	60,193	7,378,387	1,432,854	597,731	57,167	325,603	377,801	47,256
Prince Edward Island .....	119,368	39,083	6,042,191	1,240,979	143,791	31,335	90,722	166,496	40,181
Manitoba .....	253,604	4,306	556,193	198,121	185,279	16,739	60,281	6,073	17,368
North-West Territories .....	48,445	811	89,826	17,984	17,500	10,870	12,872	346	2,775
British Columbia .....	79,140	3,272	473,831	352,774	43,898	26,122	80,451	27,788	16,841
Totals .....	16,844,868	463,502	55,368,790	48,251,414	5,053,008	1,059,358	3,433,989	3,048,678	1,297,619

Grass and clover seeds not included.

## COMPARATIVE yield of Wheat and Potatoes in bushels, per acre, in Canada.

PROVINCE.	1851.		1861.		1871.		1881.		1888.	
	Wheat.	Po- tatoes.	Wheat.	Po- tatoes.	Wheat.	Po- tatoes.	Wheat.	Po- tatoes.	Wheat.	Po- tatoes.
Ontario.....	15.8	63.7	17.7	111.6	10.4	98.1	14.6	104.1	(average 1882-89.) 18.0	118.7
Quebec.....	7.4	60.4	10.8	107.5	8.3	140.9	9.0	104.1		
New Brunswick					10.8	137.6	12.7	135.5		
Nova Scotia					11.7	105.7	11.7	122.5		
Prince Edward Island.....							13.0	154.6		
Manitoba.....							20.1	129.1	(average 1883-87.) 20.6	192.0
North-West Territories							21.2	110.1	(1884.) 21.6	202.9
British Colum- bia.....							21.8	141.7		

Owing to the want of statistics, the average yield per acre can only be furnished in a few instances.

The want of detail prevents the supplying of information touching the ratio existing between the quantities sown and reaped, &c.

TABLE showing the yield of Wheat per acre in the Wheat-producing Countries of the World publishing returns.

Countries.	Year.	Yield.	Countries.	Year.	Yield.
		Bushels.			Bushels.
England.....	1885	30.8	Egypt.....	1871	15.2
Holland.....	1871-1880	24.7	Canada.....	1881	13.7
Norway.....	Average.	24.3	Greece.....	1867	13.0
Denmark.....	1876-1881	24.2	United States.....	1878-1882	11.9
Belgium...	1878-1882	23.6	Italy.....	1875-1880	11.8
Sweden.....	1878-1881	19.8	Hungary.....	1876-1880	11.3
Germany.....	1878-1882	18.2	Australia.....	1878-1882	10.7
France.....	Average. 1874-1883	16.4	British Indies.....	1884	9.3
Austria.....	1876-1880	15.5	Russia.....	Average.	8.1
Spain.....		15.4	Portugal.....		8.0

Estimated wheat production of the world in 1889—2,041,075,627 bushels.

The average

Country

Great Britain.  
Austria.....  
Hungary.....  
France.....  
Germany.....  
Russia.....  
India.....  
United States

Canada  
or 349 lb

TABLE showing  
wheat  
to the

1. United  
2. Russia  
3. France  
4. Germany  
5. United  
6. Hungary  
7. Austria  
8. Italy  
9. Canada  
10. Denmark  
11. Belgium  
12. Australia  
13. Holland

See "T"

The average yield of wheat per acre in some of the principal wheat-producing countries is given below :—

Country.	Year.	Yield per acre.	Country.	Year.	Yield per acre.
		Bush.			Bush.
Great Britain.....	1880	29·80	New South Wales.....	1889	13·93
Austria.....	1887	17·65	Victoria.....	Mean of 16 years. 1883-87	11·35
Hungary.....	1888	19·24	South Australia.....		7·78
France.....	1888	18·18	Queensland.....		10·56
Germany.....	1888	19·47	Western Australia.....		11·71
Russia.....	1887	8·96	Tasmania.....		18·31
India.....	1888	9·21	New Zealand.....		26·04
United States.....	1888	10·80	Canada*.....		18·78

\*Ontario and Manitoba.

#### CANADA'S TRADE AND CONSUMPTION OF WHEAT.

The crop of 1881 was.....	Bushels.	32,850,269
The importations were.....		8,522,724
Total.....		40,872,993
To be deducted (for sowing).....	4,141,120 }	15,741,174
And the exportations.....	11,600,054 }	

Balance (home consumption)..... 25,181,819

Canadian population, 1881, 4,324,810 ; consumption per head, 5·82 bushels, or 349 lbs. for the year.

TABLE showing the production of Cereals—Wheat, Barley, Oats, Corn, Buckwheat and Rye, in the countries having agricultural statistics, according to the rank they occupy. Average 1881 to 1887.

Countries.	Production (in Bushels).
1. United States.....	2,720,624,000
2. Russia.....	1,760,000,000
3. France.....	830,000,000
4. Germany.....	737,600,000
5. United Kingdom.....	338,500,000
6. Hungary.....	318,215,000
7. Austria.....	310,500,000
8. Italy.....	273,737,000
9. Canada.....	136,000,000
10. Denmark.....	75,525,000
11. Belgium.....	68,600,000
12. Australia.....	52,500,000
13. Holland.....	36,000,000
Total.....	7,657,801,000

See "Tisserand's Agricultural Statistics of France, 1887."

## WHEAT CROP OF THE WORLD IN 1888.

Countries.	Bushels.
North America :—	
*United States.....	415,868,000
*Canada (1881).....	32,350,269
South America :—	
*Argentine Republic and Chili .....	28,375,000
Europe :—	
*Austria.....	51,075,000
*Hungary.....	131,746,879
Belgium.....	14,876,130
Denmark.....	4,823,750
France.....	273,620,125
Germany.....	105,000,000
Great Britain.....	70,760,671
Ireland.....	4,823,750
Greece.....	106,079,370
Italy.....	4,256,250
Netherlands.....	7,093,750
Portugal.....	51,075,000
*Roumania.....	254,619,000
*Russia, exclusive of Poland.....	4,540,000
*Servia.....	101,156,875
Spain.....	4,256,250
Sweden.....	312,125
Norway.....	1,702,500
Switzerland.....	42,562,500
Turkey.....	
Asia :—	
*India.....	266,882,112
Asia Minor.....	38,306,250
Persia.....	22,700,000
Syria.....	14,187,500
South-East Asia.....	8,512,500
Africa :—	
Cape of Good Hope.....	3,819,686
*Algeria.....	19,862,500
*Egypt.....	14,187,500
*Australasia.....	47,588,161
Total.....	2,153,049,403

\* These are exporting countries which have a surplus of wheat.

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Alaska

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## NORTHERN LIMITS OF PRODUCTION OF CEREALS, ETC.

## CANADA AND EUROPE, ETC.

Bushels.	Localities.	Latitudes North	Longitudes West.	Agricultural Products.
415,868,000 32,350,269 28,375,000 51,075,000 131,746,879 14,876,130 4,823,750 273,620,125 105,000,000 76,700,671 4,823,750 106,079,370 4,256,250 7,093,750 51,075,000 254,619,000 4,540,000 101,156,875 4,256,250 312,125 1,702,500 42,562,500 266,882,112 38,306,250 22,700,000 14,187,500 8,512,500 3,819,686 19,862,500 14,187,500 47,588,161 2,153,049,403	<p><i>Alaska, United States.</i></p> <p>Fort Yukon, at Junction of Yukon and Porcupine Rivers, at about 1,300 miles north-eastward from Behring Sea.</p> <p><i>Canada.</i></p> <p>New Fort Good Hope, on the Mackenzie River, 120 miles south of Old Fort, about 310 miles south of mouth of the Mackenzie, on Polar Ocean.</p> <p>Fort Norman, on the Mackenzie, 170 miles south of New Fort Good Hope, 314 miles north of Fort Simpson.</p> <p>Fort Simpson, an island at junction of Mackenzie and Liard River, 793 miles south from mouth of the Mackenzie.</p> <p>Fort Providence, 46 miles below Great Slave Lake, 167 miles below Fort Resolution, 158 miles above Fort Simpson.</p> <p>Fort Chipewyan, at lower or west end of Lake Athabasca, 306 miles above Fort Resolution, 194 miles below Fort McMurray.</p> <p>Fort Liard or Halket, 295 miles above Fort Simpson, at junction of Rivers Liard and Mackenzie.</p> <p>Fort Dunvegan, on the Peace River branch of the River Mackenzie, 604 miles southwest from Fort Chipewyan, Lake Athabasca, 135 miles east of Rocky Mountain Portage.</p> <p>Edmonton, on the North Saskatchewan, 196 miles north of Calgary.</p>	<p>66 37 0</p> <p>66 16 0</p> <p>64 54 18</p> <p>61 52 0</p> <p>61 30 0</p> <p>58 42 38</p> <p>59 0 0</p> <p>56 08 0</p> <p>53 35 0</p>	<p>145 20 0</p> <p>128 31 0</p> <p>125 43 6</p> <p>121 25 12</p> <p>117 12 0</p> <p>111 18 20</p> <p>123 40 0</p> <p>118 13 0</p> <p>113 30 0</p>	<p>Barley is grown at this station, together with various cereals, fruits etc. Russian records give 65°7' for July, 60° for August and 59°7' for the mean of June, July, August temperature. Elevation above the sea, 412 feet; this was probably taken by Capt. C. W. Raymond, of U. S. C. of Engineers, in 1869.</p> <p>Turnips, onions, lettuce and potatoes the size of large hens' eggs. Ten kegs of 10 gallons give 25 kegs of same capacity. Mean temperature of July at Old Fort, +55°80'.</p> <p>Barley, potatoes, turnips and other vegetables. Mean summer temperature, +59°87'. The Mackenzie at Fort Norman, 150 feet above Polar Sea.</p> <p>Wheat, barley, potatoes, turnips, onions, lettuce etc. Barley ripens 12 to 20 August. Wheat sometimes succeeds. Mean summer temperature, +55°37'. Elevation of river above Polar Ocean, 241 feet.</p> <p>Wheat, barley, potatoes, turnips, onions, lettuce etc. Barley is a sure crop. Sixty kegs of potatoes gave 1,400. Mean August temperature, +43°00'. Elevation of Great Slave Lake above Polar Ocean, 391 feet.</p> <p>Wheat 68 to 69 lbs. per bushel won prize at the last Centennial Exhibition. Barley and all sorts of vegetables. Mean summer temperature, +53°37'. Rain 52 days. Snow 67 days. Elevation of lake above Polar Ocean, about 600 feet.</p> <p>Wheat, barley, rye, oats, Indian corn, potatoes, turnips and other vegetables put in the ground towards 10th May, are generally mature towards end of August. Flowers blossom first week of May. Wheat is a sure crop 4 years out of 5. Climate similar to that of Manitoba, but improved by Chinook winds. Frost penetrates ground about 4 feet. River freezes over about middle of October.</p> <p>Wheat, barley, pease, corn and potatoes have been raised here for about 100 years, and have seldom failed. Fifty lbs. of wheat sown 16th April gave 27 bushels 27th August; 15 lbs. Egyptian barley sown 18th April yielded 15 bushels threshed of 60 lbs. per bushel. Squashes, beets, carrots, cauliflowers, cabbages, onions, beans, lettuce, cucumbers and turnips are abundant. (See Ogilvie's Rep. 1889). Mean summer temperature, +52°5'. Mean yearly temperature, +28°8'. Elevation of Peace River above Polar Ocean at this Fort, probably 1,600 feet.</p> <p>Red Fife and Club wheat besides other grain and a variety of vegetables are grown successfully. Ladoga wheat would ripen two weeks earlier. Highest summer temperature, +88°0'. Lowest winter temperature, -57°0'. Elevation of Saskatchewan above Atlantic 2,253 feet.</p>

**NORTHERN LIMITS OF PRODUCTION OF CEREALS, ETC.—*Con.***  
**CANADA AND EUROPE, ETC.**

Localities.	Latitudes North.	Longitudes West.	Agricultural Products.
<i>Canada—Con.</i>			
Cumberland House, on south side of Pine Lake, upon north side of the North Saskatchewan, 690 miles southwest from York Factory, travelled distance per Franklin—425 miles northwest from Winnipeg, 648 miles eastward from Edmonton.	53 56 40	102 16 41	Luxuriant crops of wheat, barley and corn, with all sorts of vegetables, are raised here. Mean summer temperature, +62.62°. Elevation of Pine Lake and North Saskatchewan above the Atlantic per Col. Lefroy, 900 feet.
Valley of River Qu'Appelle west of Fort Ellice.	51 0 0	100 0 0 to 105 0 0	Wild hops grow luxuriantly in the valleys of the Red and Qu'Appelle Rivers. They also grow in the valley of the River Kamistiquia, near lat. 49.
<i>Europe.</i>			
Northern portion.....	67 30 0	.....	Oats.
" " .....	67 0 0	.....	Barley.
" " .....	65 0 0	.....	Rye.
Norway, Drontheim. ....	64 0 0	.....	Wheat.
Sweden.....	62 0 0	.....	"
Russia, towards St. Petersburg.	60 15 0	.....	"
" Central .....	59 0 0	.....	"
Germany, south-east of Denmark.	52 0 0	.....	Maize.

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## NORTHERN LIMITS OF PRODUCTION OF CEREALS, ETC.

## CANADA AND OTHER COUNTRIES.

Cereals, &c.	Countries.	Latitudes.	Longitudes.	FAHREN- HEIT.		Elevation above the Sea approximate.	Remarks.
				Maximum Summer.	Mean Sum- mer.		
		" " "	" " "			Ft.	
Barley.....	Lapland.....	70 0 0					Barley and rye generally ripen
do .....	Poland.....	70 0 0					5° further north than wheat.
do .....	Northern Russia.....	68 0 0					Potatoes and turnips ripen 1°
do .....	Eastern do .....	68 0 0					north of barley in the various
do .....	Western do .....	67 0 0					localities.
do .....	Alaska, U.S.....	66 37 0	145 20 0	59° 70		412	At Fort Yukon at Junction of
							Yukon and Porcupine Rivers,
							1,300 miles from Behring Sea.
do .....	Canada.....	64 54 3	125 43 6	59° 87		150	At Fort Norman, Mackenzie
							River.
do .....	do .....	58 25 0	116 0 0	90 61° 00		1,000	At Fort Vermilion, Peace River.
Rye.....	Norway.....	67 0 0					Barley is the principal crop; it
							thrives as far as lat. 70° north.
do .....	Sweden .....	65 0 0					
do .....	Russia .....	64 0 0					
do .....	Canada.....	59 0 0	123 40 0	95 62° 62			At Fort Halket on the Liard
							River, near Rocky Mountains.
Oats.....	Europe (Northern). ..	67 30 0					Oats, rye and barley ripen in
							Europe as far north as lat. 68°.
do .....	Norway .....	65 0 0					
do .....	Sweden .....	63 30 0					
do .....	Canada.....	59 0 0	123 40 0	95 62° 62			At Fort Halket, on the Liard
							River branch of the Mac-
							kenzie.
do .....	Scotland.....	58 40 0					
Maize (Indian corn). ..	Europe .....	52 0 0					It requires a summer of 65° Fah-
							renheit, with one month at 67°.
do .....	Canada.....	56 8 0	118 13 0	52° 50		1,600	Fort Dunvegan, on the Peace
							River branch of the Mackenzie
do .....	do .....	53 56 0	113 30 0	62° 52			Cumberland House, near the
							North Saskatchewan.
Wheat .....	Norway.....	64 0 0		60°			Wheat in Europe is not much
							cultivated beyond 60°; this
							range diminishes towards the
							east. The northern limit is
							generally 58° for a sure crop.
do .....	Sweden .....	62 0 0					
do .....	Canada.....	61 52 0	121 25 12			241	At Fort Simpson, Mackenzie
							River.
do .....	Western Russia.....	60 15 0					In vicinity of St. Petersburg.
do .....	Central do .....	59 0 0					
do .....	Canada.....	59 0 0	123 40 0	95 62° 62			At Fort Halket wheat is a re-
							liable crop 4 years out of 5.
do .....	Great Britain.....	58 0 0					
do .....	Canada.....	53 35 0	113 30 0	88 57° 20		2,253	At Edmonton, Red Fyfe and
							Club wheat. Lowest temper-
							ature—57° Fah., in winter.
Hops.....	Canada.....	51 0 0	100 0 0				Valley, River Qu'Appelle. The
							climate where hops grow is
							suitable for wheat.
Potatoes .....	Iceland.....	66 30	{ 13 0 9 to 24 0 0 }				The size of walnuts.

NORTHERN LIMITS OF PRODUCTION OF CEREALS, &c.—*Con.*

## CANADA AND OTHER COUNTRIES.

Cereals, &c.	Countries.	Latitudes.	Longitudes.	FAHREN- HEIT.		Elevation above the Sea approximate.	Remarks.
				Maximum Summer.	Mean Sum- mer.		
Potatoes .....	Canada .....	66 16 0	128 31 0	July 55° 80'			New Fort Good Hope, Macken- zie River, the size of hen's eggs. The temperature given was recorded by Franklin in July, 1826, at Old Fort Good Hope, 120 miles further down the Mackenzie. The temper- ature of the New Fort must, therefore, be greater.
Turnips .....	Lapland .....	72 0 0					
do .....	Canada .....	66 16 0	128 31 30	July 55° 80'			At New Fort Good Hope, on the Mackenzie, in May, June, July, August, the hours of sunlight amount to 2,398. At Ottawa they amount to 1,805.
Grapes .....	Austria .....	53 0 0					
do .....	Germany .....	54 0 0					
do .....	Canada .....	51 0 0	101 30 0				On the Assiniboine, north of Fort Ellice.
Apples .....	Europe .....	64 0 0 to 60 0 0					
do .....	Canada .....	61 50 0	125 25 2				In Canada the apple tree yields on as wide an area as pro- duces wheat. A collection of apples from Hamilton, Ont., was pronounced by the judges of the London Industrial Ex- hibition of 1862, "As the best from any country." The An- napolis Valley, Nova Scotia, (The Land of Evangeline), is famed for the quantity and quality of its apple produc- tions. 300,000 barrels of ap- ples were grown in the Coun- ties of Annapolis, Kings and Hants in 1889. See Note*

\* NOTE.—Hamilton is situated Lat. 43° 54' N., Long. 79° 57' W., and at 372 feet above the sea. The Annapolis Valley is situated between Latitudes 44° 45' and 45° 15' N., and between Longitudes 64° and 66° W.

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## DATES

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## CULTIVATION OF CEREALS.

Europe, in this respect, comprises three parallel zones from the south-west to the north-east, from the Atlantic to the Ural Mountains.

The first, or northern zone, comprises the islands of the Arctic Ocean, Scotland and its islands, Norway, the greatest portion of Sweden, Finland, northern Russia and the Ural Mountains as far as the 59th degree of latitude. Its principal grain consists of oats.

The second or central zone embraces England, Ireland, northern and central France, Germany and Poland. Its principal grains are buckwheat, barley and wheat, which are cultivated simultaneously or separately, or together with oats towards the north, and with Indian corn towards the south.

The third or southern zone, which includes Spain, the south of France, Italy, Carniole, Greece, Turkey, the Principalities of the Danube, Hungary, southern Russia and the Crimea. Its chief grain is Indian corn, and in a lesser proportion, wheat.

See "Dictionnaire général des sciences théoriques et appliquées par Deschanel et Foulon."

## DATES OF WHEAT CROPS IN THE PRINCIPAL COUNTRIES OF THE WORLD.

Wheat grows almost everywhere on the surface of the Globe and is harvested nearly every month of the year. The following are the months during which it ripens in various countries :—

<i>January</i> .....	Australia, New Zealand, Argentine Republic.
<i>February and March</i> ...	British Indies and Upper Egypt.
<i>April</i> .....	Mexico, Egypt, Turkey of Asia, Persia, Syria, Asia Minor, Cuba.
<i>May</i> .....	Northern Africa, Central Asia, China, Japan, Texas, Florida.
<i>June</i> .....	California, Spain, Portugal, Italy, Greece, Oregon, Louisiana, Alabama, Georgia, Kansas, Colorado, Missouri.
<i>July</i> .....	Roumania, Bulgaria, Hungary, Austria, France, Southern Russia, Nebraska, Minnesota, New England, Upper Canada.
<i>August</i> .....	England, Belgium, Holland, Germany, Denmark, Poland, Lower Canada, Manitoba, North-West, British Columbia.
<i>September</i> .....	Northern Canada, Scotland, Sweden, Norway.
<i>October</i> .....	Northern Russia.
<i>November</i> .....	Peru, Southern Africa.
<i>December</i> .....	Birmanian.

This continuous production of wheat has generated large commercial transactions. The nations not using bread made of wheat, are very few; the countries not producing enough for their wants, are supplied from the surplus of other countries. With steam and electricity there is no more fear of those famines which have destroyed so many thousand lives. Wheat can be carried to any place of the earth, in a comparatively short time

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PART VII.

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MACKENZIE BASIN AND NORTH-WEST CHAIN OF RIVERS AND LAKES.

YUKON TERRITORY AND LAKE ST. JOHN REGION.

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## MACKENZIE RIVER REGION.

During the Session of 1888, a Select Committee was appointed by the Senate to enquire as to the value of that part of the Dominion lying north of the Saskatchewan water-shed, east of the Rocky Mountains and west of Hudson's Bay, comprising the Great Mackenzie Basin, its extent of navigable rivers, lakes and sea coast, of agricultural and pastoral lands, its fisheries, forests and mines.

According to the report of this Committee, presented by their Chairman the Honourable John Schultz, M.D., 2nd May, 1888, they arrived at the following conclusions:—

### REGARDING NAVIGATION.

1st. The extent of the scope of the inquiry covers one million two hundred and sixty thousand square statutory miles, which area includes none of the islands of the Arctic Archipelago.

2nd. Its coast line on the Arctic Ocean and Hudson's Bay measures about 5,000 miles, exclusive of inlets and deeply indented bays.

3rd. Over one-half of this coast line is easily accessible to whaling and sealing crafts.

4th. The navigable coast lines of the larger lakes of the region in question, amount to about 4,000 miles, while its total lacustrine area probably exceeds that of the eastern Canadian American chain of great lakes.

5th. That there is a river navigation of about 2,750 miles, of which 1,390 are suitable for stern-wheel steamers, which, with their barges, may carry 300 tons; the remaining 1,360 miles, being deep enough for light draught sea-going steamers.

6th. That there is a total of about 6,500 miles of continuous lake, coast and river navigation, broken only in two places.

7th. That the two breaks in question are upon the Great Slave and Athabasca Rivers, the first being now overcome by a 20 miles waggon road from Fort Smith southward on the Great Slave River, and the latter being a stretch of 70 miles on the Athabasca, of questionable navigation above Fort McMurray, down which flat boats or scows descend but cannot ascend, and which about 50 miles of waggon road would overcome, while some improvement of the rapids might render the whole river navigable.

8th. That with suitable steam-crafts this river and lake navigation may be connected with Victoria and Vancouver, by way of the mouth of the River Mackenzie, the Arctic Ocean and Behring Straits and Sea, and it is now connected on the south by 90 miles of waggon road between Athabasca Landing and Edmonton, with navigable waters in the Saskatchewan River.

### ARABLE AND PASTORAL LANDS.

	Probable area in Square Miles.
Suitable for the growth of potatoes.....	656,000
do                      barley .....	407,000
do                      wheat .....	316,000

The pastoral area is estimated at 860,000, of which 26,000 is open prairie, with occasional groves, the remainder being wooded more or less; 274,000 square miles, including the prairie, may be considered as arable land.

Spring flowers and the buds of deciduous trees appear as early, north of Great Slave Lake, as at Winnipeg, St. Paul, Minneapolis, Kingston or Ottawa, and earlier along the Peace, Liard and other western affluents of the Great Mackenzie River, where the climate resembles that of Western Ontario.

#### FISHERIES, FORESTS AND MINES.

According to the evidence received by the Committee, the quantity of sea and fresh water fishes is sufficient to supply a great portion of the North American Continent.

The forest area has upon it a growth of trees well suited for all purposes of house and ship building, for mining, railway and bridging purposes, far in excess of its own needs.

As regards the mines of this vast region, little is known of the portion east of the Mackenzie River and north of the Great Slave Lake. On the western side of the Mackenzie and along the head waters of its affluents, the Peel, Liard and Peace Rivers the auriferous area is estimated at from 150,000 to 200,000 square miles. Silver is found on the Upper Liard and Peace Rivers, copper on the Copper-Mine River which may be connected with an eastern arm of Great Bear Lake by a tramway of 40 miles. Iron, graphite, ochre, brick and pottery clay, mica, gypsum, lime and sandstone, sand for glass and moulding, and asphaltum are all known to exist. The petroleum area along the Athabasca River, Great Slave River, Little Slave and Great Slave Lakes and the Mackenzie River, is so extensive as to justify the belief that it is the greatest in America, if not in the world, and that eventually it will supply the larger part of North America and be shipped from Churchill or some other great northern Hudson's Bay port to England. The Committee recommend that a tract of about 40,000 square miles of the petroleum region be reserved from sale, between Athabasca Lake, Peace River and Little Slave Lake.

Salt and sulphur deposits are less extensive, but the former is found in crystals equal in purity to the best rock salt and in highly saline springs, while the latter is found in the form of pyrites. There are extensive coal and lignite deposits on the lower Mackenzie and elsewhere. Scientific exploration has not yet extended north of Great Slave Lake.

The chief present commercial product of the country is its furs; the region in question is the last great fur preserve of the world.

The Indian population is sparse, and, having never lived in large communities, is peaceable.

According to the evidence received, the distances which separate the navigable waters of the Mackenzie Basin from the eastern and western sea coasts, and from navigable rivers and railways to the south and south-east, are as follows:—

From the Head of Great Slave Lake to head of Chesterfield Inlet, 320 miles; from the head of Athabasca Lake to the harbour of Churchill, 440 miles; from Fort McMurray at the junction of the Clearwater with the Athabasca, below the 70 miles of questionable navigation, to the following places on the Saskatchewan: Prince Albert, 300 miles; Fort Pitt, 220 miles; Victoria, 179 miles; Edmonton, 225 miles; from Calgary, on the Canadian Pacific Railway, to Athabasca Landing, on the Athabasca River, 250 miles; from head of Little Slave Lake to Peace River Landing on the Peace River, 65

miles; from Hazleton, on the Skeena River, to Peace River, in the Pass, 150 miles; from Port Mumford, on the Stikine River to Fort Liard, on the Liard River, 370 miles.

The Committee state that the region in question occupies an area greater than the Australian continent or two-thirds of Europe, covering part of the British Islands, Norway, Sweden, Denmark, Germany, Austria and a part of France and Russia.

### MACKENZIE RIVER.

The first expedition down this river was that of Alexander Mackenzie, who had been employed during eight years at the trading post of Chipewyan, on Lake Athabasca.

He left the fort 3rd June, 1789, descended the Great Slave River, reached Great Slave Lake on the 9th and the Mackenzie on the 29th. He passed the outlet of Great Bear Lake River 5th July, and reached the end of Whale Island at the mouth of the Mackenzie, on the Polar Ocean, 15th July. On his voyage down the river he found various encampments of Indians, most of whom refused to accompany him to the Polar Ocean, being in dread of the Esquimaux who resided along the coast.

The various forts from Chipewyan down the Mackenzie to the Polar Sea had not apparently been built at the time of Mackenzie's journey in 1789. They appear to have been erected prior to the two expeditions of Sir John Franklin, 1819 to 1822 and 1825 to 1827, except Fort Confidence, which was erected in 1825 by Sir John Richardson, one of his staff, at the north-east end of Great Bear Lake and Fort Enterprise, which was erected in August and September, 1820, by Franklin himself during his journey to the Copper-Mine River.

The Hudson's Bay and North-West Companies built forts in opposition to each other, until their coalition in 1826-27.

Franklin descended the river to its mouth in August, 1825, and returned to spend the winter at a fort built by the North-West Company at the foot or west end of Great Bear Lake in September. This fort was named Franklin.

He descended the river a second time to its mouth, with his assistants, Back and Richardson, 24th June, 1826.

From the mouth he proceeded westward with two boats along the coast of the Polar Sea to Icy Reef, and Richardson proceeded also with two boats eastward to the mouth of the Copper-Mine River.

Franklin returned by the Mackenzie to Fort Franklin, 21st September, 1826.

Richardson returned by the Copper-Mine River and the portage at east end of Great Bear Lake to Fort Franklin, 1st September, 1826.

For further particulars see in Part IV, Franklin's Three Expeditions.)

## MACKENZIE RIVER.

Average width from Fort Simpson to Polar Sea,  $1\frac{1}{2}$  miles.  
 Sixteen to twenty-seven fathoms deep at mouth, in the ocean.  
 Shoalest portions 7 to 8 feet, up stream.  
 Narrowest portion  $\frac{1}{2}$  a mile.  
 Widest portion 3 to 4 miles with islands.

From mouth on Polar Ocean up to Fort Good Hope		
the distance is estimated at about.....	310	Stat. M.
Thence up to Fort Simpson.....	484	do
Thence to Fort Resolution, Great Slave Lake .....	324.5	do

Total statute miles.....1,118.5

There are rapids near Fort Good Hope at about 310 miles above the mouth of the Mackenzie; but boats ascend them with lines without unloading.

In June, July and August the temperature is generally very hot, with occasional thunderstorms and rains; the nights are very cold; summer rains begin about the first of May; snow falls about the tenth of October; the river freezes over about the same time, and the ice breaks up about the first of June.

**FOREST TREES.**—Birch, poplar, balsams, hemlock, pine and the red willow.

**MINERALS.**—Red earth, sulphur, coal, salt, white earth, limestone, iron-stone, sandstone.

**PLANTS.**—Strawberries, gooseberries, cranberries, blueberries, lichens or tripe à la roche, wild tea.

All along the Mackenzie and the Athabasca, the fur animals are:—Beaver, marten, silver fox, lynx, otter, cross fox, blue fox, red fox, musquash or muskrat, mink, black and cinnamon bears, wolves, wolverines, moose-deer and hares. The food animals amongst these are the beaver and bear, moose and hares.

Towards the ocean, the musk-ox and reindeer are found along the coast.  
*—See lists of furs sold in 1887, in London, and of furs received in Montreal, 1881–88–89, on next page.*

In the valley of the Mackenzie, wood and white partridges, geese of all kinds (spring and fall), cranes, waders, swans and ducks are abundant; the ducks and geese arrive about middle of May, and leave about beginning of October.

The fish in the river are chiefly loche, whitefish, and the inconnu, resembling salmon, averaging 10 to 12 pounds and sometimes 30 to 40 pounds in weight; in the adjacent lakes whitefish and trout are chiefly found.

Along the coast, seals, porpoises and whales are numerous.

Steamers can navigate the Mackenzie throughout, from 1st of July to 1st of October.

## MACKENZIE RIVER REGION.

## NORTHERN FURS CHIEFLY FROM THE MACKENZIE BASIN.

ONE year's catch offered for sale in 1887, in London, by the Hudson's Bay Company, and by C. M. Lampson & Co., consignees of many of the furs of British North America.

Description.	Number.	Description.	Number.
Badger .....	3,739	Lynx .....	14,520
Bear, all kinds .....	15,942	Marten .....	98,342
Beaver .....	104,279	Mink .....	376,223
Ermine .....	4,116	Musk Ox .....	198
Fisher .....	7,192	Musquash .....	2,485,368
Fox, blue .....	1,440	do extra black .....	13,944
do cross .....	6,785	Otter .....	14,439
do grey .....	31,597	Rabbit .....	114,824
do kitt .....	290	Sable .....	3,517
do red .....	85,022	Skunk .....	682,794
do silver .....	1,967	Swan .....	57
do white .....	10,257	Wolf .....	7,156
Hair seal, dry .....	13,478	Wolverine .....	1,581

Some idea of the size and importance of the fur trade may be obtained from the following figures of the receipts of furs at the Hudson's Bay Company's warehouse, in Montreal, during the last three years. The figures have been kindly furnished by the manager in Montreal:—

Kinds of Furs.	Number of Skins.		
	1887.	1888.	1889.
Bear .....	1,399	1,528	2,037
Beaver .....	22,848	22,174	18,787
Fisher .....	1,197	1,120	1,377
Fox .....	669	756	1,150
Lynx .....	2,655	3,830	4,107
Marten .....	19,264	18,986	16,708
Mink .....	10,002	7,757	6,420
Musquash .....	81,103	74,572	55,285
Otter .....	2,768	2,550	3,010
Skunk .....	228	420	478
Wolverine .....	24	21	27
Total .....	142,157	133,714	109,386

There has been, it will be seen, a steady falling off in the number of skins, though the three years aggregate a total of 385,257 skins, and it seems evident that some such course as that suggested by the committee of the Senate is, if feasible, highly desirable, if the principal fur-bearing animals are to be saved from gradual extinction.

(See Year Book—Dep. of Agriculture, 1889, Ottawa.)

## MACKENZIE RIVER REGION.

## OPENING and Closing of Navigation.

FORT McMURRAY—Latitude 50° 40'.

Year.	Ice Broke Up.	First Drift Ice.	Ice Set. — River Closed.
1878 .....	18th April .....	27th October. ....	No record.
1879 .....	No record .....	26th do .....	1st November.
1880 .....	2nd May .....	14th November. ....	No record.
1881 .....	21st April .....	14th October.—The river became clear of ice for some time, after which drift ice again appeared, until finally the ice set and closed the river. ....	12th November.
1882 .....	24th do .....	1st November .....	8th do
1883 .....	25th do .....	30th October .....	10th do
1884 .....	27th do .....	18th do .....	28th October.
1885 .....	9th do .....	23rd do The river became clear of ice for some time, after which drift ice again appeared, until finally the ice set and closed the river. ....	13th November.
1886 .....	16th do .....	4th November .....	14th do
1887 .....	27th do .....	22nd October .....	24th October.
1888 .....	4th May .....	3rd November .....	9th November.

## MACKENZIE RIVER REGION.

## OPENING and Closing of Navigation, etc.

FORT SIMPSON—Latitude 61° 52' N.

Year.	Ice Broke Up.	First Drift Ice.	River Closed.
1876 .....	14th May .....	4th November .....	7th November.
1877 .....	8th do .....	1st do .....	28th do
1878 .....	8th do .....	16th October .....	26th do
1879 .....	3rd do .....	12th November .....	20th do
1880 .....	7th do .....	2nd do .....	26th do
1881 .....	13th do .....	12th October .....	18th do
1882 .....	7th do .....	1st November .....	30th do
1883 .....	1st do .....	25th October. The first drift ice in the Mackenzie this year was seen 1st Nov. ....	20th do
1884 .....	12th do .....	11th October .....	18th do
1885 .....	2nd do .....	28th do .....	20th do
1886 .....	13th do .....	13th do .....	25th do

The dates of the breaking of the ice in the Mackenzie, above the Liard, for the same year are as follows :—

1876 .....	Not given .....	1882 .....	20th May.
1877 .....	19th May .....	1883 .....	5th do
1878 .....	17th do .....	1884 .....	14th do
1879 .....	19th do .....	1885 .....	7th do
1880 .....	19th do .....	1886 .....	27th do
1881 .....	19th do .....		

The river is always open some time before the lake. In the latter, the ice floats around for some weeks before it is sufficiently broken up to pass down the river. In 1888 it was well on in July before the lake was clear enough to enable the steamer to proceed to Fort Smith, but that was an unusually late season. As a rule, navigation on the lake, opens in the last days of June. At Fort McPherson on Peel River, the ice does not generally leave until the 1st of June. On Lake Athabasca the ice goes a little earlier than on Great Slave Lake, but this does not affect the question of the navigability of the Mackenzie, which cannot be reached until Great Slave Lake is clear.

### MACKENZIE RIVER REGION.

#### OPENING and Closing of Navigation, etc.

NEW FORT NORMAN—Latitude 64° 54' 3" N.

Year.	Ice Broke Up.	First Snow.	First Ice Formed.	River Closed.
1872.....	Not given.....	28th September.....	7th October.....	8th November.
1873.....	17th May.....	28th do.....	21st do.....	12th do
1874.....	25th do.....	15th October.....	2nd November.....	18th do
1875.....	24th do.....	Not given.....	23rd October.....	9th do
1876.....	19th do.....	10th October.....	13th do.....	9th do
1877.....	12th do.....	25th September.....	18th do.....	Not given.
1878.....	Not given.....	28th do.....	22nd do.....	17th November
1879.....	9th May.....	3rd October.....	20th do.....	7th do
1880.....	22nd do.....	7th do.....	22nd do.....	12th do
1881.....	Not given.....	2nd do.....	7th do.....	12th do
1882.....	14th May.....	9th do.....	14th do.....	14th do
1883.....	11th do River was not clear of ice this year until 28th May	9th do.....	24th do.....	10th do
1884.....	28th May.....	Rest of record lost.....	No record.....	No record.
1885.....	No record.....	No record.....	No record.....	No record.
1886.....	do.....	do.....	18th October.....	13th November.
1887.....	24th May.....	23rd September.....	5th do.....	8th do
1888.....	19th do.....			

Resolution  
Fort Smith  
Chipewyan  
Fond du Lac  
Vermilion  
McMurray

Rampart  
La Pierre  
Good Hope  
Norman  
Liard, Li  
Nelson  
Simpson  
Providence  
Rae  
Big Island

Rampart  
La Pierre  
McPherson  
Good Hope  
Norman  
Liard  
Nelson  
Simpson  
Providence  
Rae  
Esquimaux

## MACKENZIE RIVER REGION.

## INDIAN POPULATION.

Places.	Total.
Resolution, Great Slave Lake.....	300
Fort Smith, Great Slave River.....	200
Chipewyan, Lake Athabasca.....	500
Fond du Lac do.....	250
Vermilion, Peace River.....	300
McMurray, Junction of Athabasca and Clearwater Rivers.....	150
Total.....	1,700

## WHITE POPULATION.

Places.	Men.	Women.	Boys.	Girls.	Total.
Rampart House, River Yukon Region.....	2	1	1	2	6
La Pierre's House and Fort McPherson.....	11	6	12	9	38
Good Hope, River Mackenzie Region.....	8	4	6	8	26
Norman do.....	2	2	1	4	9
Liard, Liard River do.....	7	4	4	5	20
Nelson do.....	5	3	5	3	16
Simpson do.....	14	6	9	10	39
Providence do.....	13	14	8	7	42
Rae do.....	8	4	8	6	26
Big Island do.....	5	4	9	8	26
Totals.....	75	48	63	62	248

## INDIANS.

Rampart House.....	80	68	73	65	286
La Pierre's House.....	36	41	25	39	141
McPherson.....	93	87	95	76	351
Good Hope.....	178	142	132	131	583
Norman.....	74	76	58	46	254
Liard.....	46	47	75	48	216
Nelson.....	44	42	66	57	209
Simpson.....	130	136	124	110	500
Providence.....	92	106	142	116	456
Rae.....	128	147	188	152	615
Esquimaux at McPherson.....	80	100	80	90	350
Totals.....	981	992	1,058	930	3,961

# MONTREAL TO THE MOUTH OF THE MACKENZIE, ON THE POLAR OCEAN.

PRESENT ROUTE by the Canadian Pacific Railway to Calgary, thence by waggon road to Edmonton and Athabasca Landing, thence by water.

LOCALITIES.	SITUATION.	STATUTE MILES.				
		Waggon Road.	Railway	York Boats or Portages.	Steamer	Total from Montreal.
Montreal.....	On the River St. Lawrence..					
Calgary .....	Alberta District, N.W.T.....		2,264			2,264
Edmonton.....	North Saskatchewan River. Air Line, 172 miles.....	196				2,460
Athabasca Landing.....	River Athabasca. Air Line, 86 miles.....	96				2,556
Grand Rapids .....	River Athabasca.....				168	2,724
Fort McMurray.....	do .....			83		2,807
Athabasca Lake.....	do .....				189	2,996
Fort Chipewyan.....	Lake Athabasca, north side..				5	3,001
Fort Smith Portage.....	Great Slave River.....				102	3,103
do Foot of Portage.....	do west side.....			14		3,117
Fort Resolution, on south side of Great Slave Lake.....	do .....				190	3,307
West end of Great Slave Lake	Great Slave Lake.....				121	3,428
Fort Providence.....	Between Beaver and Little Lake, on the Mackenzie River.....				46	3,474
Fort Simpson.....	On Island at Junction of Riv- ers Mackenzie and Liard...				158	3,632
Fort Wrigley.....	Mackenzie River.....				134	3,766
Fort Norman, 22 miles below Old Fort.....	do .....				180	3,946
Great Bear River, East.....	do .....				0·2	3,946·2
Ramparts .....	do .....				160·4	4,106·6
New Fort Good Hope.....	do .....				8·8	4,115·4
Red River, West.....	do .....				214·6	4,330·0
Peel River Junction.....	32 miles below Fort McPherson.....				28·0	4,358·0
Mouth of River Mackenzie..	On the Polar Ocean.....				67·0	4,425·0
	Totals.....	292	2,264	97	1,772·0	4,425·2

# COMPARATIVE DISTANCES, WINNIPEG TO LIVERPOOL, ENGLAND.

Routes.	Statute Miles.	Geographical Miles.
Winnipeg to York Factory, or mouth of Nelson River, on west side of Hudson Bay.....	750	651
York Factory to Hudson Strait, at Digges Islands.....	630	547
Hudson Strait to Atlantic, at south end of Resolution Island, on north side, or to Cape Chudleigh, on south side of outlet of Strait, into the Ocean.....	500	434
From Hudson Strait, across the Atlantic, to Liverpool, England.....	2,162	1,875
*Total—Winnipeg to Liverpool, <i>via</i> York Factory, Hudson's Bay..	4,042	3,507
Winnipeg to Quebec, by Canadian Pacific Railway, direct, <i>via</i> St. Martin's Junction, not calling at Montreal.....	1,569	1,361
Quebec to Liverpool, <i>via</i> Strait of Belle Isle.....	3,067	2,661
†Total—Winnipeg to Liverpool, <i>via</i> Quebec—Summer Route. ....	4,636	4,022
Winnipeg to Montreal, <i>via</i> Canadian Pacific Railway.....	1,423	1,234
Montreal to St. John, New Brunswick, <i>via</i> Short Line, Sherbrooke and Mattawamkeag.....	481	417
St. John to Liverpool.....	3,112	2,700
Total—Winnipeg to Liverpool, <i>via</i> St. John, New Brunswick—Winter Route.....	5,016	4,351

<sup>2</sup> Hudson's Bay and Strait generally navigable from 15th July to 15th October. August and September are the safest months for navigating Hudson Strait.

† For route *via* Cape Race, add 182 statute miles, 158 geographical miles.

ON THE  
e by waggon

Steamer	Total from Montreal.
2,264	
2,460	
2,556	
2,724	
2,807	
2,986	
3,001	
3,103	
3,117	
3,307	
3,428	
3,474	
3,632	
3,766	
3,946	
3,946.2	
4,106.6	
4,115.4	
4,330.0	
4,358.0	
4,425.0	
4,425.2	

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DESCRIPTION  
OF THE  
PRINCIPAL LAKES AND FORTS OR TRADING STATIONS  
IN THE  
NORTHERN TERRITORIES OF CANADA.

*(Arranged alphabetically.)*

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## ABITIBI LAKE.

MIDWAY BETWEEN LAKE NIPISSING AND JAMES' BAY.

Latitude, 48° 38' to 49° N. ; Longitude, 78° 25' to 80° 20' W.

Elevation above Lake Temiskaming, 245 feet ; elevation above the sea at Three Rivers, estimated at 857 feet.

R. C. Mission in the Apostolic Vicariate of Mgr. Lorrain. Rev. J. M. Nédélec, O.M.I., visits this post.

Indians—7 families of 24 persons in all, along the river, and 80 families, of 320 persons, residing in neighbourhood of lake.

The lake is surrounded by level clay land, which is almost unbroken towards the north and especially towards the north-west.

Between the lake and James' Bay the soil is fertile and the climate temperate and suitable for the production of all kinds of grain and for the raising of cattle. Barley, oats, rye, peas and beans succeed well. Wheat has been grown at Abitibi House, Flying Post and New Brunswick, on or about the 49th parallel, and at Lac Seul, between the 50th and 51st parallel. Indian corn, a more delicate plant than wheat, has come to maturity at Osnaburgh House, on Lake St. Joseph, north of the 51st parallel.

TREES.—White and red pine are found scattered over the whole region between Lake Temiskaming and Lake Abitibi. They are abundant and of excellent quality along both sides of the Height of Land. Several trees are from 8 to 9 feet in circumference. White spruce, yellow birch and cedar are also tolerably abundant and of good size. Sugar maple is also plentiful towards the head of Lake Temiskaming, but is not seen further north. The most abundant tree in this region, north of the limit of sugar maple, is aspen, after which are canoe birch, spruce, banksian pine and Canada balsam. Elm and ash occur occasionally on low flats as far north as Lake Abitibi.

A company was incorporated in 1884 by the Act 47 Vic., chapter 80, amended by Act 49 Vic., chapter 77, in 1886, for the construction of a railway from North Bay, Lake Nipissing, to Lake Temiskaming and thence to Lake Abitibi and to Moose Factory, James' Bay, the southern extremity of Hudson's Bay, a distance of about 350 miles in a direct line.

Wild animals and feathered game are abundant in the region towards James' Bay.

## ATHABASCA LANDING,

ON THE UPPER PORTION OF THE ATHABASCA RIVER. AND STEAMBOAT NAVIGATION  
NORTHWARD TO THE MOUTH OF THE MACKENZIE.

From the Landing to Edmonton there is a trail or waggon road 96 miles in length (the direct distance being 86), over which the Hudson's Bay Company hauls all the trading outfit for the posts northward.

The freight rates between the two points is about two cents per pound.

From Edmonton the trail to Calgary, which is the nearest point on the Canadian Pacific Railway, is 196 miles in length, which is equivalent to a journey of 4 days' travelling.

From Athabasca Landing, the steamer "Athabasca" runs up the Athabasca to Little Slave River, 68 miles above the Landing, and up the latter stream several miles; the distance thence to Lesser Slave Lake is about 60 miles; thence to the post at the west end of the lake the distance is about 60 miles more; thence there is a cart trail of 63 miles to Peace River Landing.

From Athabasca Landing the steamer "Athabasca," on her journey eastward and northward, runs down the Athabasca 168 miles to the head of the Grand Rapids. Between this and Fort McMurray there are 83 miles of rapids, on which the Hudson's Bay Company has a line of boats capable of carrying 10 tons each.

The same company have a second steamer, the "Graham," which runs from Fort McMurray down the Athabasca River to Lake Athabasca and to Fort Chipewyan, a distance of 194 miles, and thence down the Great Slave River to the head of the "Fort Smith Portage," a further distance of 102½ miles.

They have a third steamer, the "Wrigley," for their service, which runs from Fort Smith down to the delta of the Mackenzie, a distance of 1,273 miles. The least draft of water in that distance, varies from 7 to 8 feet.

If the Mackenzie delta has the same draft, the entire navigable distance from Fort Smith downwards to the Polar Sea would be about 1,340 miles.

## ATHABASCA LAKE TO GREAT SLAVE LAKE.

### ATHABASCA RIVER.

From Athabasca Landing down the Athabasca River to Fort Chipewyan, on the north side of Athabasca Lake, a distance of 445 miles, the navigation for steamers is interrupted about 83 miles from the head of Grand Rapids down to Fort McMurray. In July, portions of the river, when the water is high, are about one and a half miles in width.

Trees.—Birch, poplar, balsam, hemlock, pine and the red willow generally grow upon the lands in the vicinity of the river.

Minerals.—Red earth, sulphur, coal oil, salt, white earth, limestone, ironstone and sandstone.

The indications of petroleum seen in the region west of the Athabasca, between Peace River and Little Slave Lake, are such that the Schultz Committee of 1888 consider it capable of supplying the greater part of North America. They recommend Government to reserve the region from sale. It comprises a tract of about 40,000 square miles.

Animals.—The beaver, marten, silver, cross, blue and red foxes, the musquash or muskrat, the mink, wolf and wolverine, black and cinnamon bears, the lynx and others.

### ATHABASCA LAKE.

Elevation above the sea, about 600 feet, or the same as that of Lake Superior.

Greatest length, 180 Stat. M. from extreme east end to Fort Chipewyan, near outlet, per map of Capt. Deville, Surveyor General.

Greatest breadth, 55 Stat. M., per map of Capt. Deville, Surveyor General.

Ordinary breadth, 5, 20, 30 Stat. M., per map of Capt. Deville, Surveyor General.

Area, about 4,400 square miles.

Bishop Clut states that it is a magnificent lake, suitable for navigation by steamers of the largest size.

The country to the south and south-west of it, is level but sandy, wooded, and in some places fertile, while on the north side it is rocky or covered with boulders, hilly and mostly barren.

Hon. Mr. Christie, who was examined before the Schultz Committee in 1888, states that the country is not adapted for agriculture near Athabasca and Great Slave Lakes.

The country north of Athabasca Lake is crossed by lower part of Peace River, the elevation of which is from 600 to 700 feet above the sea.

The water in the lake is deep and is clear, except at the west end where the muddy water of the Athabasca River is received and also part of the Peace River at high water.

The lake in the neighbourhood of the R. C. Mission at Chipewyan freezes to a depth of 4 feet,

The ice breaks up a little earlier than on Great Slave Lake, where navigation generally opens during the last days of June.

Fish:—Whitefish, trout of several kinds, pike and carp, etc., are abundant.

#### FORT CHIPEWYAN (CHIPIOUYAN).

Lat.,  $58^{\circ} 42' 38''$  N.; Long.,  $111^{\circ} 18' 20''$  W.—*Franklin*, 1820.

do  $58^{\circ} 42' 32''$  N.; do  $111^{\circ} 19' 0''$  W.—*Franklin*, 1825.

do  $58^{\circ} 43' 0''$  N.; do  $111^{\circ} 18' 7''$  W.—*Lefroy*.

Variation,  $25^{\circ} 29' 37''$ .—11th July, 1825.

Near outlet W. end of Lake Athabasca, N. side.

Elevation above the sea, 600 feet.

Anglican Episcopal Mission, under Bishop R. Young.

Roman Catholic Mission—Nativité de la Vierge Marie, comprising a convent, 6 Grey nuns, 25 pupils. This Mission is under the care of Rev. Albert Pascal and L. Ledoussal, O.M.I., in the Vicariate Apostolic of Mgr. Henri J. Faraud, O.M.I. (The latter died 27th September, 1890, since this was written.)

Mgr. Isidore Clut, his Auxiliary, is to transfer his headquarters there in 1890.

Franklin's winter quarters, 26th March to 18th July, 1820.

Alexander Mackenzie had charge of this fort in 1781, and resided there several years. His first expedition to the Polar Sea in 1789, and his second expedition, 1792-1793 across the Rocky Mountains to the Pacific Ocean, were both from this fort.

Franklin and Dr. Richardson returned here 15th and left 25th July, on their first journey down the Mackenzie.

This Fort (Chipewyan) was built by the North-West Company, with a lofty tower to watch the Indians, who had threatened to massacre all the whites. It is a very extensive establishment on a lofty hill upon the north shore of the lake. The tower was built towards 1812.

The Indian population in the vicinity of this fort numbers about 500.

1886—Mean temperature, June, July, August,	+53·97 to + 58·70.
do do January, February, December,	+13·57 to - 3·33.
" Highest do in summer,	+83·30.
" Lowest do in winter,	- 49·00.
" Mean do during an entire year,	+24·41 to 27·52.
" Number of days' rain, 52 during a year.	
do snow, 67 do	
" Inches of rain—6·74 during a year.	
" do snow—78·40 do	
" Percentage of cloudy weather, 54·00.	
1887. Hours of sunlight : 514 in May, 549 in June, 530 in July, 467 in August.	
" Total hours of sunlight at Chipewyan—2,060, summer months.	
do do at Ottawa— 1,805 do	

On the north side of Athabasca Lake, around Chipewyan, there is little or no soil of any description, the country being all bare Laurentian rock.

The country around the fort is wooded with pine, spruce, tamarac and poplar.

The Hudson's Bay Company have a garden at the fort, of upwards of an acre in extent, and the Anglican Mission one of smaller area, but the soil is very sandy. The Roman Catholic Mission have a garden also, most of which they obtained by draining a bog.

In the season of 1883, which was a favourable one in that district, being free from summer frosts, the Hudson Bay Company raised about four hundred bushels of potatoes, the Anglican Mission thirty bushel on a small patch, and the Roman Catholic Mission about five hundred bushels.

Many of the retired Hudson Bay Company's servants also have small patches which they cultivate; potatoes and fish being the principal articles of food used during the winter.

Wheat, barley, rye and oats sown about 10th May are reaped about 10th August. Turnips and other vegetables, strawberries and gooseberries are also grown here with success. The wheat grown here weighs from 68 to 69 lbs. per bushel; it was awarded a prize by the last Centennial Exhibition.

#### WHITEFISH.

In 1888, during the autumn, the Hudson Bay Company required 36,000 whitefish for the use of their post, the R. C. Mission 12,000 and the rest of the population at least 30,000 more. Most of these were caught within three weeks, while Mr. Ogilvie was there. (See his report, 16th July, 1889).

Fresh fish is abundant at all the posts along the lake; they are frozen for preservation during the winter.

#### WILD GEESE.

From 30,000 to 40,000 wild geese are killed here in the course of autumn from year to year.

#### COAL.

Coal, four to five feet thick, is found in the limestone rock of the mountain; it is older, much harder and better than the lignite coal.

## FORT CHURCHILL HARBOUR AND RIVER, ON WEST SIDE OF HUDSON'S BAY.

1886—Lat.  $58^{\circ} 43' N.$ —Long.  $94^{\circ} 10' W.$ —Lieut. Gordon's Expeditions, 1884, 1885, 1886.

A few turnips are grown with difficulty.

Cattle are raised and bred, and excellent butter is made.

See evidence of Hon. Mr. Christie, Schultz Committee, 1888.

In summer, the twilight lasts a couple of hours; the remainder of the day is all day light. In winter the nights are very long; darkness begins at about half past three or four in the afternoon and lasts until 9 a.m. the next day.

### TEMPERATURE, ETC.

June, July, August, 1886—Mean  $+40.00$ .

December, 1885, January, 1886—Mean  $-42.89$ .

July, August, 1886—Highest  $+43.33$ .

February, 1886—Lowest  $-55.00$ .

Frost never leaves the ground except for a few inches, 10 to 30.

Days' rain, Sept., 1885, to Sept., 1886, 65 during 12 months.

Days, snow, Sept., 1885, to Sept., 1886, 37 during 12 months.

Hours of fog, Sept., 1885 to Sept., 1886, 418 during 12 months.

Depth of snow on level ground varies from 2 to 3 feet.

Average of most windy day  $24.81$  M. per hour, during 12 months, 1885-86.

Ice forms in harbour about 15th November every year.

Ice breaks up in river about 28th June, and the river is clear about 15th

July.

Ice breaks up in harbour about the 15th June.

Ice near Marble Island is  $7\frac{1}{2}$  feet thick.

The factor at Churchill states that the ice in the bay never extends far enough to intercept the view of open water. The bay is navigable early in June.

Spring tides rise  $15\frac{1}{2}$  feet in the bay.

Neap tides rise 8 feet in the bay.

### CHURCHILL HARBOUR.

This is the best and only safe harbour on the western coast of Hudson's Bay. It is 2,841 Geog. M.=3,272 Stat. M. from Liverpool.

The basin for anchorage is about 1,500 yards north and south by about 1,000 east and west, and has a depth of four fathoms at low water.

The holding ground is excellent, the bottom being mud, and though the tide runs very rapidly, about six knots at half tide, this harbour is an eminently safe one. It is admirably suited for a railway terminus.

The necessary docks could be easily and cheaply built, and the deep water basin enlarged at small cost. Stone is lying at the water's edge ready to be laid into docks and piers and nature seems to have left little to be done in order to make this a capacious port for doing a business of great magnitude.

### CHURCHILL RIVER.

White whales (porpoises) ascend the river with the tide, each day, in great numbers. Each porpoise is worth about \$100.

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In 1883, the Company secured nearly 200 in one tide at Churchill.  
 Whitefish, salmon and trout are abundant in this and all the streams  
 around the bay.

For further details see "Hudson's Bay."

### FORT CONFIDENCE, AT N. E. END OF GREAT BEAR LAKE.

Is the most northerly habitation of white men. It is beyond the Arctic  
 circle, or at  $66^{\circ} 53' 36''$  of north latitude, and  $118^{\circ} 40' 0''$  of west longitude.  
 Erected and named by Simpson in 1837.

Simpson and Dease were there three winters, 1836-37, 1837-38, 1838-39.

They never failed a single day to have an abundant supply of food.

Although the lake was closed ten months out of the twelve, the season  
 being exceptionally severe, they had abundance of fish, deer, musk-ox and  
 meat of other kinds, at all times.

### CUMBERLAND HOUSE.

On south side of Pine Lake, north side of North River Saskatchewan.

Lat.  $53^{\circ} 56' 40''$  N.; Long.  $102^{\circ} 16' 40''$  W.—*Franklin*, 22 Nov., 1819.

Var.  $17^{\circ} 17' 29''$  Dip. North  $83^{\circ} 12' 50''$  do do

Lat.  $53^{\circ} 57' 33''$  N.; Long.  $102^{\circ} 21' 46''$  W.—*Franklin*, 28 June, 1825.

Var.  $19^{\circ} 14' 21''$  E.; Dip. N.  $80^{\circ} 21' 7''$  do do

These observations were taken by Sir John Franklin, who remained at  
 this post 22nd October, 1819, to 18th January, 1820, on his outward journey  
 during his first expedition, and returned here on his outward journey during  
 his second expedition, 15th June, 1825.

Supposed elevation above the Atlantic, according to Colonel Lefroy, 900  
 feet.

690 miles, south-west from York Factory—travelled distance, per Franklin.

425 miles north-west from Winnipeg.

648 miles eastward from Edmonton.

Mean summer temperature  $+62.62^{\circ}$ .

Temperature observed by Chief Factor John Lee Lewis, in 1839-40, from  
 23rd to 30th May,  $78^{\circ}$  to  $93^{\circ}$  Fah.; October 1— $68^{\circ}$  Fah. above zero.

Luxuriant crops of wheat, corn and barley, together with all sorts of  
 vegetables, are grown here.

The Roman Catholic Indians in the Cumberland District number 490  
 Maskegons, in 1890; they are in the diocese of Mgr. Vital Grandin, who  
 resides at St. Albert, about 12 miles north-west of Edmonton.

On 1st October, 1840, potatoes being ripe were harvested. They were  
 planted 13th May.

### FORT DUNVEGAN, ON PEACE RIVER.

Latitude,  $56^{\circ} 08'$ ; longitude,  $118^{\circ} 13'$ , per Ogilvie. 100 miles west of  
 west end of Little Slave Lake, in a direct line; 604 miles south-westward from  
 Fort Chipewyan, Lake Athabaska; 60 miles west above the Forks of Peace  
 and Smoke Rivers, towards Peace River Landing; 135 miles eastward from  
 Rocky Mountain Portage; elevation above the sea said to be 1,600 feet.

Anglican Episcopal Mission, under Rev. Mr. Brick, in the Diocese of  
 Bishop R. Young.

Roman Catholic Mission of St. Charles, under Rev. Le Serrec, Sup., and Le Treste, O.M.I., in the Diocese of Mgr. Henri J. Faraud.

Roman Catholic Indian School under the same in 1886.

Mean temperature—Summer + 52° 3'; year + 28° 8'.

Snow disappears about middle of April; cultivation begins towards May; the river begins to freeze in November; the depth of snow is about 2 feet during winter; in 1883, only 20 days of rainy weather.

At Dunvegan, notwithstanding the severity of the frosts, the crops are very good both in quality and quantity. When I was there (1883) the Roman Catholic missionaries had threshed their grain, samples of which I brought back. The yield was as follows:—50 pounds of wheat were sown on the 16th April and reaped on the 20th August, and 27 bushels threshed of good clear grain; 15 pounds of Egyptian barley sown on the 18th April and reaped 20th August, and 15 bushels threshed, weighing fully 60 pounds to the bushel.

The Hudson's Bay Company and Episcopal Mission had not threshed, and could not give their returns; but they were well satisfied with their crops of all kinds. The Rev. Mr. Brick, of the Episcopal Mission, was already using bread, when I was there, made from wheat of the present year's growth (1883). See report of Mr. Ogilvie, 16th July, 1889.

The Hudson's Bay Company have raised wheat, barley and potatoes for upwards of a hundred years at this post; the crops have seldom failed.

In 1886 a magnificent crop of wheat, barley, peas, potatoes, turnips, squashes, beets, carrots, cauliflowers, cabbages, onions, beans, lettuce, cucumbers, &c., was raised on the prairie land, some 36 miles from Dunvegan.

The Rev. Tissier, a Roman Catholic missionary for some years at the latter place, tried oats and obtained an astonishing return.

### EDMONTON.

At 196 miles, by trail or waggon road, north from Calgary.

413 miles by the North Saskatchewan River, west from Lake Winnipeg.

1,073 miles by North Saskatchewan and Lake Winnipeg from City of Winnipeg.

96 miles, by trail or waggon road, south from Athabasca Landing.

Lat. 53° 35' N.; Long. 113° 30' W.

Elevation above the sea, 2,253 feet.

Mean temperature, summer - 57° 2'; year + 31° 7'.

It has three churches, Anglican, Catholic and Methodist; a sawmill, two grist mills, one or more hotels, a telegraph office and several stores.

Mgr. Vital Grandin, bishop of the Roman Catholic Diocese of St. Albert, resides at St. Albert, about 9 miles further north-westward.

The vicinity of Edmonton is rich in coal, gold and other minerals; the coal is now being worked.

Red pine and spruce are abundant; the leaves begin to appear in May. Grain and vegetables of various kinds are raised successfully.

Three steamboats run regularly between Edmonton and Winnipeg.

During ordinary seasons navigation is open from April to the middle of October. For details see further on. See also in Addenda the Mission of Lake St. Anne, the first that was founded, at 50 miles from Edmonton.

Highest temperature +88° summer months.

Lowest do —57° winter do

Mean do +8·33° do do

Number of days rain fell, 15 ; inches of rain, 4·53.

do snow fell, 26 ; do 26·90.

### FORT FOND DU LAC.

On north side of Lake Athabasca, towards east end.

Latitude, about 59° 45' ; Longitude, nearly 108°.

140 statute miles, north-east from Fort Chipewyan, which is situated at lower end of lake.

There is a Roman Catholic Mission here, named Notre Dame des Seït Douleurs, under the care of Rev. A. H. De Chambreuil, O.M.I., in the Vicariate Apostolic of Mgr. H. J. Faraud.

The number of Indians in the vicinity of, or frequenting, this station, according to the Rev. Grouard, O.M.I., Roman Catholic Missionary at Chipewyan, is about 250.

Bishop Clut states that the post here is for trading dry provisions and grease from the Chipewyans who hunt the reindeer on the barren grounds. It is a great resort, he says, for wild fowl passing south in the fall. Geese and swans alight there in millions to feed.

### FORT AT FRANCIS LAKE.

Established by Campbell in 1842.

Campbell discovered the Pelly River in 1840.

Bell discovered the Lower Yukon, 1845.

The latter went down the Porcupine or Rat River in three days, in 1842.

Yukon, established 1847.

Selkirk, established 1848.

### FORT FRANKLIN.

At lower or south-west end, near outlet of Great Bear Lake.

Latitude 65° 11' 56" N. ; Longitude 123° 12' 44" W. ; Variation 38° 59' 20" E.—Per *Franklin*, 19th September, 1825.

1826—Summer, mean temperature +50°·20.—June, July, August.

1825-26—Winter do —17°·00.—Dec., Jany., February.

1826—Highest temperature +60°·26.—July.

1826—Lowest do { —31°·60.—January.

—49°·00.— do during two days.

Franklin left this Fort with Lieut. Back and Dr. Richardson, on 24th June, 1826, for the Polar Sea, after having spent the winter there since September, 1825.

He returned there from the Polar Sea on the 21st September, 1826, and remained until middle of May, 1827.

For further details, see Great Bear Lake.

## TEMPERATURE.

## FORT FRANKLIN and FORT RAE.

Mean Temperature during	Fort Franklin, Lat. 65° 12'.	Fort Rae, Lat. 62° 40'.
	Fah.	Fah.
May.....	35° 2	27° 7
June.....	51° 4	51° 4
July.....	52° 0	61° 2
August.....	59° 6	56° 5

## FORT GOOD HOPE (NEW OR UPPER).

Latitude, 66° 16'; Longitude, 128° 31'.

On east side of the Mackenzie; 120 miles above site of the Old Fort Good Hope on west side; 2½ miles above the Hare Indian River and 2 below the Ramparts; 170 miles below Fort Norman; 274.7 miles above Fort McPherson, the most northerly fort.

Fort Good is near the Arctic Circle.

In 1836 the Fort had been moved up to the Upper Manitou Island, whence it was swept by a flood, and was afterwards built on its present site.

Franklin, on his way down the Mackenzie to the Polar Ocean, passed at Old Fort Good Hope 1st July, 1826, for which he gives latitude 67° 28' 21", and longitude 130° 54' 38", the variation of compass being 47° 28' 41" east.

The temperature recorded by him, 1st to 7th July, 1826, on his way from the fort down to the mouth of the Mackenzie, varies from +41° 6 to 53° 8 Fahrenheit.

The Hudson's Bay Company has half a dozen houses here and some stables.

The R. C. Mission of Notre Dame de Bonne Espérance, comprising the convent of the Sisters of Charity, at this post has been under the Rev. Jean Séguin, O.M.I., during the past 30 years; he is assisted by the Rev. Mr. Giroux, O.M.I. This mission is in the Vicariate Apostolic of Mgr. Faraud, of whom Mgr. Clut is the Auxiliary. The interior of the Mission Church is one of the best finished in the country.

Many of the buildings and fences are painted with a dull red colouring matter, consisting of the ashes of wood that had lain several years in the river.

The white population at or in the vicinity of this post is 26, and the Indian population is about 583.

The sun does not rise here from 1st November to 11th January.

The hours of sunlight, compared with Ottawa, are as follows:—

At New Fort Good Hope: 592 in May, 662 in June, 625 in July, 519 in August.

At Ottawa: 456 in May, 462 in June, 464 in July, 423 in August.

Total number of hours of sunlight at New Fort Good Hope ... 2,398

do do Ottawa..... 1,805

Greatest cold, December, January, February, 1885, varied from -14° to -50° per Centigrade thermometer.

Greatest cold, December, 1884, January and February, 1886,  $-14^{\circ}$  to  $-50^{\circ}$ .

Greatest cold, 21st and 29th January, 1887,  $-53^{\circ}$ .

In July and August, 1888, the days were pleasant and warm, and the nights not unpleasantly cool.

Turnips, carrots, onions, lettuce and potatoes are raised at this post, and wild roses are abundant. The potatoes are the size of large hens' eggs.

Flour delivered here, costs \$30 per bag of 100 lbs.

In winter and in summer, those who reside at this post live mainly on fish and barley soup.

### GREAT BEAR LAKE AND THE COPPER-MINE RIVER.

Greatest length of lake, 175 statute miles in a direct line from Fort Confidence at head or east end of lake, in latitude  $66^{\circ} 53' 36''$  and longitude  $118^{\circ} 40''$  to Fort Franklin, at lower or south-west end, above outlet of lake, latitude  $65^{\circ} 11' 56''$  north, and longitude  $173^{\circ} 12' 44''$  west.

Length along navigation line, 250 miles.

Breadth varies generally from 25 to 30 and 45 or more miles.

Greatest breadth from McTavish Bay, south-east side to head of Smith's Bay, north-west side of lake, 185 statute miles.

Depth, over 270 feet.

Area, about 11,200 square miles.

Height above the sea, per Dr. Richardson of the Franklin expedition, 200 feet.

Lake begins to freeze over, latter part of September.

Centre of it, not frozen until late in December and even in January.

Ice goes out towards end of June.

Dr. Richardson left Fort Franklin, in company with Franklin, 24th June, 1827, descended Bear River, and the Mackenzie; reached the Polar Sea 7th July.

Franklin with Back and a portion of party went westward with two boats some 374 miles to Icy Reef which he reached 31st July; he left there 1st August on his return journey and arrived at Fort Franklin 21st September.

Dr. Richardson with the remainder of the party and two boats, coasted eastward; he reached the mouth of the Copper-Mine, latitude  $57^{\circ} 58'$ , longitude  $115^{\circ} 18'$ , 8th August; the thermometer that day was at  $86^{\circ}$  in the sun; he ascended the river until the 13th and crossed overland to north-east end of Great Bear Lake, which he reached on the 18th, at 115 miles from the mouth of the Copper-Mine; he coasted some 318 miles along the lake shore, partly by boat and partly by canoe and arrived back at Fort Franklin, 1st September, 1826.

He states that the first 40 miles of the Copper-Mine, are full of rapids and that the river is practicable only for boats drawing a few inches of water.

### GREAT BEAR LAKE.

The temperature at sunset was  $+62^{\circ}$ .

He saw small herds of reindeer, passed stunted spruce and fir groves, and encamped 11th August, among small pines in latitude  $67^{\circ} 33'$ ; saw many grey marmots.

Fort Rae,  
Lat.  $62^{\circ} 40'$ .

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On the 13th he left the Copper-Mine; going direct overland to the Great Bear Lake. The rocks were red old sandstone, clay, slate and greenstone; he passed scattered and thin clumps of pine; saw wolves in the mountains; temperature was  $+53^{\circ}$ . Sandflies were troublesome.

On the 14th to 17th, saw partridges (latitude  $67^{\circ} 10'$ ) and met with wooded valleys. Saw much wood in the valleys far to the west and north. Bog whirtle berries were abundant.

On the 17th Indians came laden with tongues and fat half-dressed meat; two deer killed.

17th to 19th August. Passed over rising ground covered with white spruce.

20th to 21st August. Fished in Great Bear Lake where pike, carp and whitefish were caught.

22nd August to 1st September. Journey over lake to Fort Franklin.

Dr. Richardson during his journey from the Polar Ocean, met with wooded valleys, had fish and deer meat every day, occasionally partridges, and musk-ox one day.

Hearn in his two expeditions, 1769-70 to discover Copper-Mine River, found deer plentiful, swans, geese and partridges and killed three musk-oxen; on the barren grounds west of Hudson's Bay he says that foxes were very plentiful, also lynx, the polar and grizzly bear and the wolverine.

Sir John Richardson states that in 1825-26 when he was wintering on the northern arm of Great Bear Lake, he took out 50,000 whitefish and over 3,800 trout in eighteen months, weighing from 5 to 30 lbs. each, and that other fish were there in innumerable quantities.

The temperature varied from  $53^{\circ}$  to  $62^{\circ}$  in the evening at sun-down during the summer months.

### GREAT SLAVE LAKE.

Greatest length, 300 to 320 statute miles, per map, Department of Interior, 1887, from ruins of Fort Reliance at east end to Fort Providence, 46 miles below west end of lake.

Greatest breadth, 180 statute miles; from south side up to head of North Arm, 40 miles beyond Fort Rae.

General breadth varies from 10 to 60 statute miles.

Area, about 10,100 square miles.

Height above the Mackenzie at Fort Simpson, 150 feet, or about 391 above the sea. Its waters are transparent, like those of the great lakes of the St. Lawrence.

Great Slave Lake was sounded with a 65-fathom line (390 feet) without reaching the bottom, which is below the sea. It is supposed to be as deep as Lake Superior.

This lake, owing to its great depth, is seldom completely frozen over before the last week of November, and the ice, which is generally 7 feet thick, breaks up about the middle of June, three weeks later than the ice of the Great Slave River. Navigation generally opens towards July.

The only known outlet to this vast body of water which receives numerous streams on its north and south shores, is the Mackenzie River.

The eastern shores are very imperfectly known.

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The Indians say there is a communication from its eastern extremity, by a chain of lakes, with a shallow river which discharges its waters into the Polar Sea; this stream, which they call the Thlouee-tessy, is navigable for small canoes.

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On the north side of the lake, there is an arm comprising two extensive bays which stretch far towards the north-westward, 40 miles beyond Fort Rae; the upper bay receives the water of a river which communicates with Marten Lake.

The Indians report that there are extensive deposits of mica on the south side of the lake.

Bituminous limestone and tar springs are also found along the lake.

In 1888 the Hudson's Bay Company caught and used 75,000 whitefish in this lake; they weighed about 2½ lbs. each, or in all about 190,000 lbs. There are many other varieties of fish; trout are often caught, weighing 40 lbs.

### FORT HALKET.

On the Rivière aux Liards, near Rocky Mountains; 150 miles south-westward of Fort aux Liards, which is in Lat. 60° 5' and Long. 121° 20' or thereabout at 145 miles south of Fort Simpson, River Mackenzie.

Lat. about 59° N.; Long. about 123° 40' per map.

	Men.	Women.	Boys.	Girls.	Total.	
White population.....	7	4	4	5	20	per Census, 1881.
Indian do .....	46	47	75	48	216	do
	53	51	79	53	236	

R. C. Mission of St. Raphaël, under the supervision of Revs. H. Lecomte and J. Gourdon, O.M.I., in the Vicariate Apostolic of Mgr. H. J. Faraud.

The climate here is severe in winter and to a certain extent similar to that of Manitoba, owing no doubt to the Chinook winds. All kinds of grain and garden plants and vegetables come to maturity here, according to Chief Trader McDougall; he states that barley ripens most years as far as the Arctic Circle or say to 66½° of latitude N.

Wheat, barley, rye, oats, Indian corn, sown about 10th of May, turnips, potatoes and other vegetables planted in May, are generally mature towards end of August. Strawberries and gooseberries ripen at an earlier date. The flowers begin to blossom towards the first week of May.

Wheat is a reliable crop, four years out of five.

Frost penetrates the soil about four feet; the river freezes over, about the middle of October and opens about the 8th of May.

### HUDSON'S BAY AND STRAITS.

This bay extends from 51° to 63° of north latitude, a distance of about 825 statute miles in length and from 78° to 95° of west longitude, a distance of about 600 statute or of 521 geographical miles in breadth.

Hudson's Strait is about 500 statute miles in length and 100 in breadth, or 434 geographical miles in length and 87 in breadth.

### NAVIGATION.

The Bay is navigable early in June, its waters being warmer than those of the Straits.

The period of navigation during an ordinary year in the Bay and Straits is estimated as being from 15th July to 15th October, with a possibility of a fortnight longer in spring and autumn for strongly built vessels with propellers of small dimensions, well down in the water.

#### FISHERIES.

The fish and mammals possessing commercial value in these waters are—The right whale, the white whale, the narwhal or unicorn, the walrus, seals of various kinds, salmon, trout and whitefish. The right whale ascends into the Gulf of Boothia, beyond the 70<sup>th</sup> degree of latitude.

Codfish are very plentiful in all the coves and inlets of Ungava Bay, but not beyond it.

#### FAUNA.

The terrestrial mammalia of the Straits and northern part of the Bay are chiefly: the polar bear, white, grey, red and black foxes, reindeer, wolves and hares.

Geese, swans, ducks, ptarmigans and other kinds of game birds, are plentiful.

#### FOREST TREES.

Spruce, tamarac, balsam-fir, canoe-birch, aspen and balsam-poplar are reported to exist in the interior of Northern Labrador, at some distance from the coast of the Atlantic and the Straits, except along the rivers and brooks, which are generally fringed with spruce and tamarac.

On the west side of Hudson's Bay spruce is found in considerable quantities all along the coast.

### PRINCE OF WALES SOUND—HUDSON'S STRAITS.

#### FAUNA AND FLORA.

The fauna and flora observed by F. F. Payne, assistant in the meteorological service of Canada, when he was in charge of the Stupart's Bay station, on the north-west coast of the Sound, are fully described in Lieut. Gordon's report of 1886.

According to a list given in this report respecting the flora, the plants are in bud at dates varying from the 20th of May to the 27th of June. They are in leaf generally in the course of June and in flower during July. The seeds ripen in August, and the plants wither between the 20th of August and the 15th of September.

#### GEOLOGY OF HUDSON'S BAY AND STRAITS.

The shores along the Straits consist chiefly of gneiss. The specimens of rock collected on the west coast of the Bay indicate that the Huronian series covers a large extent of the Hudson's Bay region; this series is the principal repository of the economic materials.

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## ECONOMIC MINERALS OF THE HUDSON'S BAY TERRITORIES IN GENERAL.

Dr. Bell in his report of 1885, enumerates the following useful minerals, describing the location where they are to be found :—

Iron, clay-ironstone, copper, lead, zinc, molybdenum, silver, gold, gypsum, salt, soapstone, lignite, anthracite, petroleum and asphalt, mica, graphite, asbestos, chromic iron, apatite, iron pyrites, lime, hydraulic cement, building stones, glass-sand, fire-clays and clays for brick-making, moulding-sand, shell-marl for manure, ochre, peat, flagstones, roofing slates and other substances, as well as various ornamental stones and rare minerals of scientific interest.

Judging from the information obtained and his researches up to 1887, he regards the north-west of Hudson's Bay as one of the most promising in valuable economic materials of the yet unexplored territories. See Lieut. Gordon's reports on his expeditions to Hudson's Bay, 1884–1885–1886.

## LA BICHE LAKE.

Mean latitude, 54° 48' north. Mean longitude, 112°. Nearly 24 miles long; lies in a shallow alluvial basin, and is surrounded by good land of a nearly level character; it discharges into the Athabasca.

It is 70 miles east by water and 40 in a direct line from Athabasca Landing.

It is in the Diocese of the R. R. Bishop Grandin, and is the residence of the Right Reverend H. J. Faraud, Bishop of the Vicariate Apostolic of Athabasca Mackenzie, Bishop of Anemour, consecrated 30th November, 1863. His Auxiliary, Mgr. Isidore Clut, up to 1889, resided at Fort Providence, near lower end of Great Slave Lake.

The Roman Catholic Mission of Notre-Dame des Victoires at this post, comprises St. Joseph's Academy, with about 30 pupils.

The Sisters of Charity have a convent there and also an Orphan Asylum, and a Hospital.

The Half-breeds and Indians raise a good amount of wheat and other cereals, together with potatoes and other vegetables. Wheat seldom suffers there from frost.

Nearly 1,000 Half-breeds and 500 Cree Indians are living around the Lake or in its vicinity.

The Methodists have an important Cree Mission at 40 miles south of this Lake.

In the Mackenzie Basin there are about 20,000 Indians in all, between its source and the Arctic Sea.

## LIARD RIVER.

This affluent of the Mackenzie is navigable from its outlet at Fort Simpson for 240 miles, southward and westward towards the Rocky Mountains.

It freezes over about the 15th of October.

The breaking up of the ice on this stream, from 1876 to 1886, inclusive, has varied from the 5th to 27th of May.

The river is always open some time before the ice leaves Great Slave Lake.

Frost penetrates the ground about 4 feet.

Winds are frequent during the winter season, in the vicinity of the Fort aux Liards.

## LITTLE SLAVE LAKE.

Lat.,  $55\frac{1}{2}^{\circ}$  to  $55\frac{1}{2}^{\circ}$  N. Long.,  $114\frac{3}{4}$  to  $116\frac{1}{4}$  W.

Elevation above the sea, 1,800 feet.

Greatest length, 65 Statute miles.

Greatest breadth, 12 Statute miles.

General breadth, 4 to 8.5 Statute miles.

Area, about 500 square miles.

R.C. Mission of St. Bernard, at west end of lake and upon its north side, under the Rev. D. Collignon, Supr., and Rev. Desmarais, O.M.I., in the Diocese of Mgr. Vital Grandin.

R.C. Indian School—45 pupils (Crees) descendants of the Algonquin Tribes—under the same missionaries.

Anglican Mission and three Protestant ministers, in the Diocese of Bishop R. Young.

Hudson's Bay Company's Post.

Mean temperature in summer,  $+54^{\circ}6$ .

Barley has been found in stack here as early as the 12th of August.

## FORT McLEOD—NORTH.

## WEST OF THE ROCKY MOUNTAINS.

Lat.,  $55^{\circ}$  N. Long.,  $123^{\circ}$ ,  $15'$  W., per Map, Dept. Int., 1887.

One of the first posts of the Hudson's Bay was established here in 1805, at the foot of Trout Lake, now McLeod Lake, which discharges into the Parsnip River, a branch of Peace River, on the route followed by Sir Alexander Mackenzie across the Rocky Mountains to the Pacific Ocean in 1793, *via* Salmon River.

One branch of the Peace River takes its rise at the Fort where it is called the Parsnip. There is not a rapid in the river from Finlay Forks to McLeod.

## FORT McLEOD—SOUTH.

On the Belly River, about 95 miles south-eastward from Calgary, and about 55 miles by trail north of United States Boundary.

Thence to Fort Shaw, U.S., 120 miles.

Lat.  $49^{\circ}45'$  N. ; Long.  $113^{\circ}25'$  W., per Map, Dept. Int.

The Indian population in the vicinity comprises about :

1,000 on the Piegan Reserve, south and west of Fort McLeod.

2,400 do Blood do east of do

These Indians are attended to by the R.C. Missionaries :

Rev. A. Lacombe, O.M.I., of Fort McLeod.

L. VanTighen, O.M.I., of Lethbridge.

Emile Legal, O.M.I., of the Blood Reserve.

Donat Foisy, O.M.I., of Belly River.

There is an Anglican Mission here, under Rev. Mr. Hilton.

These Reserves and the Blackfeet Reserve of 2,150 Indians, which begin midway between Strathmore and Namaka or at 43 miles east from Calgary and end at Crowfoot at 75 miles from Calgary, and are along the south side of the Canadian Pacific Railway, are all in the R.C. Diocese of Mgr. Grandin and in the Anglican Diocese of Bishop W. C. Pinkham.

The Blackfeet Indians are attended to by the Rev. Léon Doucet, O.M.I., and by the Rev. Mr. Tims of the Church of England.

## FORT McMURRAY LANDING.

Junction of Rivers Athabasca and Clearwater at about 225 miles north of Edmonton and 160 miles north-west from Lac à la Crosse, H. B. C. post.

Lat.  $56^{\circ} 40' N.$ ; Long.  $111^{\circ} 30'$ , per map, Dep. Int.

Indian population in the vicinity of this fort, 150 per Rev. Grouard, O.M.I., 1888.

R. C. Mission—Notre Dame des Sept Douleurs—Rev. A. H. De Chambréuil, in the Diocese of Mgr. H. J. Faraud, O.M.I.

This fort is at the foot of a long series of rapids on the Athabasca River.

From 1878 to 1888 inclusive, the river was closed by ice between 24th October and 14th November; there was drifting ice in it from 18th October to 14th November; the ice broke up between 9th April and 4th May.

Specimens of wheat and barley have been obtained here which have astonished every one who saw them. Many of the ears contained 100 grains and the weight of both wheat and barley was nearly 10 per cent. over the ordinary weight. Further west, there is a vast country which Sir George Simpson, one of the Governors of the Hudson's Bay Company, calls the very Eden of the North.

Rye, oats, potatoes, turnips, strawberries and gooseberries grow here with facility.

Grain sown about the 10th May, is reaped about the 10th of August.

## FORT McPHERSON.

Lat. about  $67^{\circ} 26' N.$ ; Long.  $134^{\circ} 57' W.$  (See W. Ogilvie's Report., Dep. Int., 1888-1889.)

This fort is built on the east bank of the Peel River, some 14 miles above the point where it divides and joins the Mackenzie delta which is common to both, at about 32 miles from the fort.

This is the most northerly point at which any one is permanently settled in this district.

A Roman Catholic Mission is to be established here in 1890-1891 by Bishop Isidore Clut. Archdeacon McDonald, formerly stationed at Fort Yukon and afterwards at Rampart House, had charge of the Anglican Mission work at this station in 1887.

	June 20 to 30.	July 1 to 31.
Mean temperature.....	+ 62.0	+ 64.7 in 1888
Highest do .....	+ 74.0	+ 78.0 do
Lowest do .....	+ 37.3	..... do
Mean minimum temperature.....	+ 43.33	+ 45.4 do

May. June. July. Aug.

Total hours of sunlight... 706 720 684 527=2,637—Ft. McPherson.  
do do ... 456 462 464 423=1,808—Ottawa.

The soil, as seen along the Mackenzie, is good for agricultural purposes.

When W. Ogilvie, D.L.S., arrived at Fort McPherson on 20th June, the new buds on the trees were just perceptible, and on the evening of the 22nd, the trees were almost fully in leaf.

The combination of favorable temperature and long hours of sunlight, he states, promises well for vegetable growth, but there are interfering causes.

9—11\*\*

Unfortunately snow storms are apt to come at any time in the year. On 2nd July five inches of snow fell and the thermometer went down to 25° (7° below freezing point), yet, strange to say, the frost did not appear to hurt anything.

No attempt at cultivating cereals or roots has been made as yet, it appears, although scarcely more than one degree further north than Fort Good Hope.

White population, Fort McPherson, including La Pierre's House at head of the Porcupine, 38.

Indian population in the vicinity of Fort McPherson, 351.

Esquimaux frequenting this fort, 350.

### MISTASSINI LAKE.

Between 50½° and 51½° Lat. N., and between 72½° and 74° Long. W., at about 150 miles N.-W. from Lake St. John.

West portion of lake about 92 miles in length, and from 13 to 17 miles in breadth with a range of islands along the centre; east portion of lake about 60 miles in length, and from 5 to 10 miles in breadth. Area, as scaled on map, about 2,000 miles. It discharges westward through the River Rupert, about 213 miles in length, into James' Bay near the south-eastern end of James' Bay. This river is said to be much larger than the Saguenay.

Richardson, in his report of 1870, states that the land in the region of the Great Lake is a level plain not more than 30 feet above the lake, and that the soil, which is calcareous, is fertile and excellent for cultivation.

Blackberries were ripe 5th and 6th July; raspberries, 7th and 8th July; timothy was 2 feet high and coarse grass was 4 feet high on 9th July. He saw quantities of wild grapes in the surrounding country.

### MOOSE FACTORY.

Say Lat. 51° 10' N., Long. 80° 45' W.

At head or southern end and west side of James' Bay, which forms part of Hudson's Bay.

Projected railway from Moose Factory to Lake Abitibi, Lake Temiskaming and to North Bay of Lake Nipissing, 350 miles in length. Company chartered in 1884 for its construction. See details of Lake Abitibi.

Mean temperature, June, July, August..... + 62·20

do January, February, December..... -12·00

do entire year..... + 35·76

Highest temperature, June..... + 92·10

Lowest do January..... -35·90

Rain fell 100 days. Rainfall in inches, 21·0 in 1878.

Snow fell 83 days. Snowfall in inches, 15·4 in 1878.

Percentage of cloudy days during twelve months 66·0.

First rain, 1877 to 1881, varied from 9th March to 4th April.

First snow do 16th to 21st October.

River frozen over do 2nd November to 9th December.

River open do 9th May.

Thunder and lightning, April, June, July.

Depth of snow in woods, varied from 10 to 30 inches, February and December.

Average summer temperature, 62°·20.

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Turnips, beets, carrots, cabbages, onions, tomatoes, spinach, potatoes, mustard, cress, rhubarb, radishes and cauliflowers are raised here in abundance. The cauliflower appears to be one of the surest crops, and is sometimes ready for the table as early as the first of August. Vegetables are sown about 18th May, and potatoes planted towards 21st May.

Barley, oats, beans, pease and rye ripen well. The crops of the Windsor bean and Kidney bean are surprising.

Fall wheat grows very well, notwithstanding the severity of the winter frosts.

Eighty heads of cattle, besides horses, pigs and sheep, are kept here by the Hudson's Bay establishment.

Whether viewed in reference to size, quantity or quality the crops at Moose Factory and Matawagaming, 260 miles further south, will compare favourably with those in the best potato-growing districts in Ontario.

The Anglican Bishop, J. Horden, whose diocese of Moosonee embraces the territory around Hudson's Bay, resides at Moose Factory.

The Roman Catholic missions, east and west of James' Bay from 70° to 91° of longitude, are in the Vicariate Apostolic of Mgr. Lorrain who resides at Pembroke. The Rev. J. M. Nédélec, O.M.I., one of his missionaries, visits the Factory occasionally after attending the mission of Lake Abitibi. He resides at Mattawa.

There are 250 Protestant and many Catholic Indians at Moose Factory.

Wild animals and feathered game abound in the surrounding region.

#### FORT NELSON.

On east branch of River aux Liards, Rocky Mountains.

Lat. 58° 30' N.; Long. about 120° W.

R. C. Mission, Notre Dame des Neiges. Vicariate Apostolic of Mgr. H. J. Faraud.

Rev. Gourdon, O.M.I.

#### LAKE NIPIGON.

Lat. 49° 30' to 50° 15' N; Long. 88° to 89° nearly, W.

Distance by Nipigon River to Lake Superior about 30 miles.

Length about 60 miles, north and south.

Breadth about 40 miles, east and west.

Depth—No bottom found at 540 feet.

The lake comprises numerous islands; its waters are deep and contain, in abundance, fish of every description taken in Lake Superior.

The land is good on the south-western side of the lake, and the country becomes more level, receding from the lake and in the direction towards Winnipeg.

The country north of the hilly region around Lake Superior, between the Pie River and Lake Nipigon, is comparatively level, with a sandy soil, generally dry, but in places there are shallow swamps and low rocky ridges. The sand soil is underlaid by a light coloured clay which occasionally comes to the surface.

Oats and barley are successfully cultivated at Long Lake House, eastward of Lake Nipigon; hay, potatoes and all the ordinary vegetables thrive remarkably well. Potatoe tops are not touched by frost before the first week of October.

Climate:—At Pic the mean temperature recorded was 62·88 in July; 63·54 in August; 64·19 in September and 56·02 in October; weather very fine during these months. The temperature was nearly the same as at Toronto during July and August, and warmer in September and October, taking the average of 29 years, and although Toronto is about five degrees further south.

#### LAKE NIPISSING.

Lat. 46° 7' to 46° 23' N.; Long. 79° 30' to 80° 6' W.

Greatest length, east and west, about 40 miles.

Greatest breadth, north and south, about 20 miles.

Area about 200 square miles.

Elevation above the sea 665 feet.

The northerly shores of the lake are low, generally of flat rock and sand and the water shoal upon a sandy bottom.

Its waters pass out into French River by three outlets through myriads of islands, and are discharged into Georgian Bay, Lake Huron, which is 578 feet above the sea.

From Lake Nipissing to Georgian Bay the distance is about 40 miles, and the navigation is obstructed by falls and rapids. The scenery along French River surpasses that of the Thousand Islands of the St. Lawrence below Kingston.

#### FORT NORMAN (NEW).

On the Mackenzie River, 314 miles north of Fort Simpson, 169 south of New Fort Good Hope, 289 south of Old Fort, and 380 south of Fort McPherson.

Old Fort, latitude, 64° 40' 38" N.; longitude, 124° 44' 47" W., per Franklin, 7th June, 1826; variation, 39° 57' 52".

New Fort, latitude, 64° 54' 3"; longitude, 125° 43' 1"—Ogilvie, 1888.

Elevation of the Mackenzie at Fort Norman above the Polar Sea, about 150 feet.

New Fort Norman is situated on the east bank of the Mackenzie, just above the outlet of Great Bear Lake River.

On 5th July, 1789. Alex. Mackenzie passed here on his journey down to the Polar Sea. Franklin reached this point 7th August, 1825, and 25th June, 1826, going down the River Mackenzie.

In 1844 the old fort was situated 23 miles above its present site and on the west bank of the Mackenzie.

Mean summer temperature, June, July, August, 59·87 at new fort.

The white population here amounts to about 9 persons, and the Indian population in the vicinity to about 254 persons.

There is an Anglican Mission here, in the Diocese of Bishop W. C. Bompas, and also the Roman Catholic Mission of Ste. Thérèse, which is under the Rev. X. C. Ducôt, O.M.I., who has resided upwards of 22 years at the post, in the Vicariate Apostolic of Mgr. H. J. Faraud.

W. Ogilvie, D.L.S., who stopped there in 1888, states in his report of 16th July, 1889:—

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At Fort Norman the Hudson's Bay Company had a garden planted with turnips, potatoes and other garden produce. I was at that point during the last days of July, at which time potatoes were about six inches high and did not promise a good yield.

The Roman Catholic Mission had two patches, together about an acre in extent, planted with potatoes. The soil here was much better than in the first patch, being a warm clay loam, while in the other it was nearly all decaying vegetable, commonly called "muck." The mission potatoes were much stronger in the vines than the Hudson's Bay Company's, and at that time nearly covered the ground.

The Anglican missionary had planted a small piece of ground near the river, on a sheltered bench below the top of the bank, and facing the south. Here the growth was much stronger than at either of the other places. Some barley had been sown in it and was well grown, the stalks averaging from two to two and a half feet high, and the heads being long and just beginning to fill. The growth of grass on this flat is luxuriant, and nettles grow as strong and large as any I have seen elsewhere. Near the edge of the woods, wild vetches grow as long and vigorous as they do near Edmonton.

#### 1872 TO 1888, INCLUSIVE.

First snow at New Fort Norman, 23rd September to 15th October.

First ice formed on the Mackenzie, 5th October to 2nd November.

Navigation closed do 2nd November to 18th November.

Ice broke up do 9th May to 28th May.

#### NORWAY HOUSE.

At the north-east end of Lake Winnipeg.

Lat.  $53^{\circ} 41' 38''$  N.; long.  $98^{\circ} 1' 24''$  W.

About 130 miles westward of Oxford House and 345 miles westward of York Factory.

Malcolm McLeod, who was examined before the Schultz Committee in 1888, states that:—"There was plenty of ground for cultivation, but that everyone was so busy at more urgent work that no one tried to farm or to cultivate."

Col. Crofton states that:—"Corn, pease, rhubarb, cabbages and other vegetables were grown successfully at this station when he was there."

#### OXFORD HOUSE.

On the Hayes and Hill River route from York Factory to Lake Winnipeg, 215 miles westward from York Factory, Hudson's Bay; 130 miles eastward from Norway House, at north end or foot of Lake Winnipeg.

Lat.  $54^{\circ} 53' N.$ ; long.  $95^{\circ} 45' W.$ , per map, Dep. Int., 1887.

Malcolm McLeod stated before the Schultz Committee, in 1888, that although this station is on the summit of the Laurentian range, he saw a fine garden, growing potatoes abundantly.

Barley and vegetables are grown here and much farther north in the Mackenzie River region.

## PEACE RIVER.

This affluent of the Mackenzie stretches from beyond Fort McLeod, west of the Rocky Mountains, down to Great Slave River, below Fort Chipewyan of Lake Athabasca, or from Long.  $123^{\circ}$  and Lat.  $54\frac{1}{2}^{\circ}$  to Long.  $111\frac{1}{2}^{\circ}$  and Lat.  $58\frac{1}{2}^{\circ}$ .

The upper Peace River is navigable for steamers drawing 3 to 4 feet of water; with some improvement at two points, a draught of 5 to 6 feet might be obtained. It affords a navigable stretch of 557 miles down to the falls, some 50 miles below Fort Vermillion. The lower portion of the river is navigable for about 220 miles from the falls down to Lake Athabasca, excepting a rapid of about 2 miles in length.

This stream was the route selected by Mackenzie during his journey across the Rocky Mountains to the Pacific Ocean in 1793.

Peace River Landing is about 63 miles by trail or waggon road north-eastward from the west end of Little Slave Lake.

Before a Select Committee of the Senate, in 1888, Prof. Macoun said:—"The waters of the Peace River are like those of the Mississippi, of a milky colour. It is a mighty river, 1,000 yards wide. \* \* \* \* \* When we reached the bank of the river, we came upon it like as if we were walking across this room; there was no appearance of a river at all. The country was perfectly level and there was no appearance of the river until we came upon the verge almost of a steep bank—we could see the country on the opposite side of the river. Seven hundred feet below us there wound a mighty river: I have never seen a river like it in any sense. You can picture to yourself a river 800 yards wide, meandering through a narrow but very deep valley, because we were 700 feet above the water of the river. We could look to the left up the Smoky River and to the right to the sandstone cliffs, miles below us. That was in September, 1872.

## PEACE RIVER REGION.

This is a vast tract of fertile land embracing about 10 degrees of latitude and 13 of longitude.

It is a terraced land of rich rolling prairie, a park-like land of wood, glade and meadow where the jumping deer glance through the dry grass and trees.

The trees are of great size and of splendid growth; they are like the magnificent trees around Kensington Park.

The country is so crowded with animals that it has the appearance, in some places, of a stall yard.

On the Upper Peace River the snow fall is from 18 to 36 inches in depth; the snow disappears towards the 5th of April, and anemones blossom towards the 20th, at which time mosquitoes begin to appear.

The climate is mild owing to the influence of the Japan Sea, the great gulf stream of the Pacific, which tempers it to such an extent that wheat may be grown at Fort Simpson in Lat.  $61^{\circ} 52'$ , and barley as far north as Fort Norman in Lat.  $64^{\circ} 54' 3''$ , although it is 1,200 miles further north than Quebec.

The general level of the portion of the river between the Rocky Mountains and Smoky River is about 2,000 feet above the sea.

Between Peace River and Athabasca Lake, the elevation does not exceed 1,000 feet; it diminishes northward.

According to Capt. Palisser, the temperature lowers three degrees for every 1,000 feet of elevation above the sea.

### PEEL RIVER.

This stream joins the Mackenzie below Fort McPherson, on its west side; it is navigable and navigated a distance of about 60 miles by the Hudson's Bay steamer "Wrigley," which ascends it with supplies and returns with the furs collected at the fort.

At the fort, the river is seldom clear of ice before the month of June.

### PRINCE ALBERT

Is on the north side of the North Saskatchewan River, at 353 miles west of Lake Winnipeg and 460 miles east of Edmonton.

Latitude,  $53^{\circ} 10'$  north. Longitude,  $105^{\circ} 40'$  west, per map, Department Interior.

Population, say 5,000

Spring begins generally in April; harvesting is done from the second week of August until the first week of September.

Early frost comes about 17th August and the latest about 1st September.

Cattle must be fed as a rule from the time the heavy snow falls in November until March.

Wheat, oats, pease, barley, potatoes, carrots, parsnips and other vegetables are generally raised with success. Oats have yielded from 50 to 60 bushels per acre.

Strawberries, raspberries, cranberries, saskatoon and other berries are found in abundance.

North of Prince Albert there is an extensive belt of spruce and poplar.

### FORT PROVIDENCE (NEW).

Latitude, about  $61^{\circ} 30'$  north. Longitude, about  $117^{\circ} 12'$ , per map, Deville.

167 miles westward from Fort Resolution on south side of Great Slave Lake.

$157\frac{1}{2}$  miles south-eastward of Fort Simpson on the Mackenzie.

This Fort is 17 miles below Beaver Lake and 24 miles above Little Lake, or at 46 miles below west end of Great Slave Lake.

It is on the north bank of the river, some 15 to 25 feet above the water, and opposite an island a mile or more in length and half-a mile from the shore; the main channel is on the south side of this island; south of this island there is another island.

The Hudson's Bay Company have a trading post here, comprising various buildings.

Up to 1890 this station has been the headquarters of the Roman Catholic Bishop Clut, who has built a church, hospital, orphan asylum and a school, which are under the care of Rev. A. L. Lecorre and Audenard, O.M.I., and of eight Grey Nuns who now have 46 pupils.

White population at this post, about 42; Indian population in its vicinity, not increased since census of 1881, which gave 456.

W. Ogilvie in his report 16th July, 1889, to Department of Interior, states :—

At Fort Providence the usual garden produce is grown every year and generally turns out well. Barley is also grown with success; but in 1888 it was, as everywhere else in the valley, much retarded by cool weather. Up to my departure from the post, the lowest temperature, exclusive of 2nd July, was  $31.8^{\circ}$  on 29th August. The mean minimum for August was  $+43^{\circ}$ . When I was there the barley was beginning to change colour, and unless a very severe frost came soon after, would ripen. Wheat has been grown here for many years by the Hudson's Bay Company, generally being fairly ripe before it is touched by frost, and sometimes escaping altogether.

#### FORT RAE.

Polar Station of Great Britain and Canada.

Lat.  $62^{\circ} 39' N.$ ; Long.  $115^{\circ} 44' W.$

Towards north end of north arm of Great Slave Lake.

Roman Catholic Mission of St. Michel, in the Vicariate Apostolic of Mgr. H. J. Faraud.

Rev. Bruno Roure and Victor F. Ladet, O.M.I.

According to last census, 1881, the white population comprised 8 men, 4 women, 8 boys and 6 girls, in all 26. The Indian population comprised 128 men, 147 women, 188 boys, 152 girls, in all 615.

Mr. W. Ogilvie in his report, 16th July, 1889, to the Department of the Interior, states :—

I was informed that small potatoes were grown in a garden at Fort Rae; but according to report there is not much land around the lake available for farming, even were the climate suitable, as it is nearly all rock.

Samples of seed were received from the Experimental Farm of Ottawa, but too late for planting in 1888.

Mean summer temperature—June, July, August,  $55.53$ .

Mean winter do December, January, February,  $-17.60$ .

175—Highest, August,  $+85.00$ ,

1875—Lowest, February,  $-51.00$ .

1875—Number of days rain fell, 11.

1875—do snow fell, 44. (None in June, July and August.

1875—Number of inches rain, 4.13.

1875—do snow, 19.20.

Snow falls about the 27th September; the lake freezes over about the middle of October; the snow begins to disappear in April; the trees show signs of budding about 16th May; the ice breaks up towards 3rd June, and the trees begin to lose their leaves towards the first September.

#### FORT RELIANCE.

On the Yukon River.

Lat. about  $64^{\circ} 15'$ ; Long. about  $140^{\circ} 30'$ .

There is a flat here of some 1,500 acres. Messrs. Harper and McQuestion have lived there for some years; it appears they never made any agricultural experiments, believing that they would be futile.

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## FORT RESOLUTION.

Lat.  $61^{\circ} 10' 26''$  N., Long.  $113^{\circ} 45' 00''$  W., on 30th July, 1825, by Franklin.

Lat.  $61^{\circ} 10' 5''$  N., Long.  $113^{\circ} 46' 5''$  W., Capt. Lefroy, 1842-44.

Near the outlet of Slave River into Great Slave Lake.

Here the Hudson's Bay Company has the usual trading station buildings, and the Anglican Church Mission Society of the Diocese of Bishop W. C. Bompas, has a small mission.

The Roman Catholic Mission of St. Joseph, in the Vicariate Apostolic of Mgr. H. J. Faraud, is on an island in the lake some distance from the fort. It is under the Rev. L. F. Dupire, O.M.I.

Indian population in the vicinity, about 300.

June 19. Lake ice solid west of fort.

do 28. Many plants in flower.

July 2. Ice very solid in various places.

W. Ogilvie, in his report, 31st December, 1889, states:—

At Fort Resolution the Hudson's Bay Company were growing potatoes, turnips and barley. The first two were of good quality and size, but there would be no yield of the last. The Anglican missionary also had a garden, in which were potatoes, cabbages, cauliflowers, turnips, onions and pease, the latter still green on the 21st of September. The potatoes and cauliflowers were both good in size and flavour.

Samples of grain were received from the Experimental Farm of Ottawa, but two late for planting in 1888.

## SASKATCHEWAN RIVER.

According to Capt. Palisser the altitude of the upper portion of the plain of the Saskatchewan River is 2,700 feet, and that of the lower portion 1,600 feet above the sea.

The temperature lowers 3 degrees for every 1,000 feet of elevation above the sea.

## FORT SIMPSON.

Lat.  $62^{\circ} 11'$  N.; long.  $121^{\circ} 38'$  W., per Franklin, 5th August, 1825.

Lat.  $61^{\circ} 52'$  N.; long.  $121^{\circ} 25' 2''$  W., per Capt. Lefroy, 1842-44.

Var.,  $57^{\circ} 42'$  E., per Franklin, 5th August, 1825.

Situated on an island just below the junction of the Mackenzie and Liard Rivers, at about 800 miles from the mouth of the Mackenzie, 158 miles north-westward of Fort Providence, 180 miles below Fort Liard, in an air line, and about 300 miles below the source of the Mackenzie.

Elevation of the Mackenzie at Fort Simpson, 241 feet above the Polar Sea at the mouth, and 150 feet below the level of Great Slave Lake.

This post comprises the headquarters of Hudson's Bay Company for the district, together with the Roman Catholic Mission of the Sacré Cœur, under Rev. P. Nouel de Kranqué, Vicariate Apostolic of Mgr. H. J. Faraud, and an Anglican Mission in the Diocese of Bishop W. C. Bompas.

White population at this station, about 39; Indians in vicinity, about 500.

Mean temperature, June, July, August.....	+55.37
do December, February, December.	—14.70
Highest temperature during summer.....	+69.30
Days rain, 103; snow 10, during the year.	
Hours of sunlight, 533 in May, 570 in June, 558 in July, 481 in August.	
Total hours of sunlight at Fort Simpson, 2,147, May, June, July, August.	
do do Ottawa,	1,805 do do

Around the fort, the timber, consisting generally of hemlock, poplar, birch and fir, is very large and is used for building purposes. The fort is built of squared timber.

Potatoes of the same size as in Ontario are grown in abundance, and supplies of them are sent by boat to Fort Good Hope, 484 miles further north on the Mackenzie.

Turnips, onions, lettuce and barley are also raised. On 24th August, 1888, Mr. Ogilvie says, they looked as good as the same kinds seen on the Ottawa market, although this post is 1,150 miles further north than Ottawa. Strawberries blossom about 7th June.

Garden products are available in August.

Wheat has been tried, but with indifferent success.

Cows and oxen are kept here all winter, and fed on native grass.

There are large numbers of caribou and moose deer and rabbits, silver fox, beaver, marten, lynx, and foxes of all kinds, geese and ducks, in the Simpson district.

The fish used there, are whitefish and trout, 5 to 12 pounds, from Great Slave Lake. A fish called "la loche," of 30 to 40 pounds, is caught, but is generally used to feed the dogs.

In winter the ice on the Mackenzie is fully 6 feet thick. It breaks up and descends from 1st to 14th of May. The river remains open until 17th to 30th November, previous to which drift ice descends from 11th October to 12th November.

Snow 2 to 3 feet deep in winter.

#### FORT SMITH.

On west side of Great Slave River.

Lat. about 60° N.; Long. about 112° 20' W.

116½ miles below Fort Chipewyan on Lake Athabasca; 190½ miles above Fort Resolution, on south side of Great Slave Lake; 1,273½ miles above Fort McPherson, on the lower Mackenzie.

Fort Smith is at the lower end of a cart road, along the west side, over which the outfits for the posts on the Mackenzie are hauled from the head to the foot of the rapids.

At this station the Hudson's Bay Company have a few buildings, and there is also a Roman Catholic Mission called St. Isidore by Mgr. Faraud, who gave it the name of his Auxiliary, Mgr. Isidor Clut; the Mission is under the Rev. A. Laity, O.M.I., assisted by a lay brother.

There are about 200 Indians in the vicinity of this post.

Large deposits of salt are reported on Great Salt River, some miles from the Fort. The salt is used all over the Peace, Athabasca and Mackenzie districts, and to the taste is pure. Mr. McConnell, of the Geological Survey, visited the deposits in the fall of 1887.

### FORT SMOKE RIVER OR FORT BOUCANE.

About 5 miles above junction of Peace River, or 7 above Peace River Landing, which is 63 miles by trail north-westward from west end of Little Slave Lake.

Landing, Lat.  $56^{\circ} 15' N.$ ; Long.  $117^{\circ} 16' W.$

Mission, Lat.  $56^{\circ} 10' N.$ ; Long.  $117^{\circ} 23' W.$

The R. C. Mission at this station is attended to by the missionaries in charge of the St. Charles Mission:—Rev. Aug. Husson and Desmarais under Mgr. Faraud and Mgr. Clut, his Auxiliary.

The soil along the road between Little Slave Lake and the mouth of Smoking River is of a superior quality. On the borders of the Peace and Liard Rivers there are several magnificent sections of good alluvial lands.

For details respecting land, trees, climate, etc., see Peace River District.

NOTE.—See "Lake St. Anne Mission" in Addenda.

### FORT ST. JOHN.

On Peace River, near east side of Rocky Mountains, beyond south-west corner of Athabasca District, 95 miles west of Fort Dunvegan and 125 miles west of Hudson's Hope.

Lat. about  $56\frac{1}{2}^{\circ} N.$ ; Long. about  $121^{\circ} W.$

Professor Macoun states that potatoes, oats, barley and many varieties of vegetables were in a very flourishing state in "Nigger Dan's" garden. The oats stood nearly five feet high, and the barley had made nearly an equal growth, on 26th July, 1875. The barley and oats were both ripe about the 12th August. Berries on the plateau ripen about a week later than near the river.

From 1866 to 1875 the ice on the Peace River broke up between the 16th and 26th of April. Towards the fall of the year, the ice begins to drift between the 31st October and the 10th of November.

Mr. Selwyn, referring to the journals of temperature, etc., kept at this station, has reported that the climate of the Peace River compares favourably with that of the Saskatchewan or of Montreal.

### LAKE ST. JOHN REGION.

On the northern, north-eastern and western sides of Lake St. John there is a vast extent of alluvial soil of great depth and fertility. The soil on the south shore is not so fertile nor so deep as upon the north and west shores. As the lake is sheltered by mountains, the climate is comparatively mild, less subject to variation and more regular than in the rest of the Province of Quebec, as established by meteorological observations. (See comparative statement of thermometrical observations made and altitudes above the sea level measured during J. Richardson's exploration of 1870, at pages 358, 359, Gen. Rep. P. W., 1867-82.)

Heat and rain are not so excessive as in the greater part of the district of Quebec.

The climate is as mild as that of Montreal, and is highly favourable for the culture of all sorts of grain and vegetables, including fall wheat, beets and turnips, and is especially adapted for the raising of horned cattle, sheep and pigs.

Spring begins two to three weeks earlier than at Quebec, and the soil is ready for the cultivation of vegetables before the lake ice disappears.

Ice begins to form in November, and the lake is afterwards frozen over so that it can be travelled on with safety, with heavy loads, after the 10th of December. Ice begins to disappear along the borders of the lake towards the middle of April. The whole of the lake is free from ice towards the 12th of May. The bed of the lake consists of limestone which crops out on its western shore. The dimensions, elevation and depth of the lake are :

Greatest length.....	28	Miles.
do width .....	20	
Contour .....	85	
Area .....	365½	

Elevation above the sea 278 feet, per report 8th March, 1881, of A. L. Light, Ch. Eng. R., P.Q. (*The Lake surface rises about 20 feet in spring above its winter level.*)

Elevation above the sea 293 feet, per Richardson's report, June, 1870.

Depth of lake varies generally from 3 feet at one mile from shore to 12 and 54 feet at 1½ to 3 miles from shore, and to 60 feet and more towards the middle of the lake, where the greatest depth varies from 60 to 225 feet.

The entire territory yet to be colonized and developed by means of railway and steamboat communication, in the St. Maurice, Quebec, Saguenay and Lake St. John regions, contains as much cultivable land as that now occupied in the two Provinces of New Brunswick and Nova Scotia.

#### ST. MAURICE, QUEBEC AND SAGUENAY REGIONS.

In the immediate vicinity of the railway there are 6 millions of acres, of which at least one-half is reported as being well adapted for settlement.

Between the St. Maurice and the Saguenay the extent of territory to be settled and developed is estimated at 28 millions of acres.

The settlement of the country along the main line of railway from Quebec to Lake St. John and the branch line to St. Tite on the Canadian Pacific branch of railway from Three Rivers to the Grandes Piles, on the St. Maurice, is progressing rapidly since 1882-83.

N.B.—For a full description of the Lake St. John and Saguenay regions, as regards climate, soil, minerals, forests, products, &c., see App. No. 8, by G. F. Baillairgé, D. M. P. W., pp. 344 to 446 of Gen. Rep., P. W., 1867-82. See also report of A. L. Light, Chf. Eng. Gov. Rys., P.Q., 9th March, 1881, in answer to an Order of the House of Commons, 14th Feb., 1881.

#### TEMISKAMING LAKE.

Between latitudes 46° 45' and 47° 40', and longitudes 79° and 79° 40', consists of three lakes, the lower, middle and upper, connected by narrow straits, and extends 75 miles, without any obstructions to vessels of the largest tonnage. The upper lake extends from Fort Temiskaming to the head, and is from 6 to 8 miles in width; it is studded with picturesque islands.

The south end of the lower lake is about 40 miles north-eastward of North Bay, at north or upper end of Lake Nipissing.

The projected railway from North Bay to Moose Factory, 350 miles in length, is to connect with Lakes Temiskaming and Abitibi.

Area of Lake Temiskaming, per Deville, 113 square miles.

Elevation above the waters of the St. Lawrence or of the sea, at Three Rivers, which is the highest point affected to any extent by the action of the tides, 612 feet.

The influence of the tide at Sorel, further up the St. Lawrence, as recorded by G. F. Baillairgé during his examination of the dredged channel between Montreal and Quebec, varied from one to two inches, 1868 and 1869.

Hudson's Bay Company's Post, latitude  $47^{\circ} 19'$  north.

do do longitude  $79^{\circ} 31'$  west.

Mean summer temperature, 1888.....June, July and August,  $69^{\circ} 2$ .

do winter do .....December, January and February,  $17^{\circ} 6$ .

Highest during the year 1888.....July and August,  $67^{\circ} 33$ .

Lowest do .....January,  $9^{\circ} 23$ .

Days cloudy and rain during the year 1888.....72.

do snow do .....38.

In this region there is good clay soil along the flats of the rivers and creeks; generally, however, a sandy loam prevails.

There is a R. C. mission here, under the Rev. F. X. Thérien, sup., J. Guéguen, A. Mourier, and F. A. Fafard, O.M.I., of the Apostolic Vicariate of Pontiac, under Mgr. N. Z. Lorrain.

Barley, oats, rye, peas and beans, turnips, beets, carrots, cabbages, onions, tomatoes, &c., are grown with facility.

Indian corn is grown in more than one locality near the head of the lake, and is said to ripen well.

*Trees.*—White and red pine are scattered over the whole region between Lake Temiskaming and Lake Abitibi; they are abundant and of good quality on the slopes of the hills along the Height of Land, some are from 8 to 9 feet in circumference. White spruce, yellow birch and cedar, of good size, are abundant. Sugar maple is tolerably plentiful round the head of the lake, but is not seen further north. The same remark applies to swamp maple and white oak.

North of the limit of the sugar maple, the most abundant tree in the region beyond the lake, is aspen, after which comes canoe-birch, spruce, banksian pine and Canada balsam. Elm and ash grow occasionally on low flats, as far as Lake Abitibi.

Fishes in this lake and that of Tamagaming, west of it:—Bass, pickerel, pike, and salmon trout in abundance.

Flagging slabs of good quality and large dimensions are found on the west side of Lake Temiskaming, about 7 miles above the "Galère." Roofing slates are found 5 miles up the Montreal River, which discharges into the Middle Lake, on its west side.

Wild animals and feathered game are abundant in the region towards James' Bay.

#### FORT VERMILION.

On Peace River, which discharges into the Great Slave River, and also connects with Lake Athabasca.

Latitude, about  $58^{\circ}$ ;  $25'$  longitude about  $116^{\circ}$ .

Elevation above the sea, about 1,000 feet.

About 320 miles north-east of Fort Dunvegan, on the Peace River.

About 284 miles westward of Fort Chipewyan, near foot of Lake Athabasca.

Temperature, highest,  $+90^{\circ}$ .

Roman Catholic mission of St. Henri and school for Indians, under Rev. C. H. Jousard, O.M.I., diocese of Bishop Faraud and Mgr. Clut, his coadjutor. Anglican mission and school under Rev. Garrioch and E. J. Lawrence, Diocese of Bishop R. Young.

Indians in the vicinity of this Fort, about 300.

W. Ogilvie, in his report of 16th July, 1889, states:—

At Vermilion, along the river on the south side, there are about twelve to fourteen miles of prairie, with small poplar and scrub, which runs back from the river about three miles. The soil is good black loamy clay, loose and deep, with a gravelly clay subsoil.

Wheat and barley, turnips, potatoes, carrots and parsnips thrive well.

The Anglican mission school, for the teaching of the young in the district, has a farm attached, with about twenty acres under cultivation, under the management of E. J. Lawrence. Last year (1887) his crops of potatoes, barley and wheat were splendid; this year the frost almost destroyed everything.

Mr. Garrioch, in charge of the Anglican mission, also cultivates quite a large piece, from twenty-five to thirty acres, in connection with the mission. The Hudson's Bay Company has an extensive field, growing both roots and grain (wheat and barley); the Roman Catholic mission also cultivates some ground. Besides the above farms, several others were located, in 1887, by private parties, all of whom seem hopeful for the future.

In the winter of 1887, 27 Cree Indians, out of a Band of 30, died of starvation, and were eating each other near this station; they had no snowshoes, and could not therefore go out to hunt. The missionaries were unable to assist them; they receive nothing from the Government; from 20 to 25 per cent. of duty is collected on articles imported for the use of the settlers in that part of the country.

#### FORT WRIGLEY.

Lat. over  $63^{\circ}$ ; Long. about  $123^{\circ}$ .

On east side of the Mackenzie.

624.5 miles above Fort McPherson.

180.3 do do Norman.

134.0 miles below do Simpson.

The Mackenzie is  $\frac{3}{4}$  of a mile wide for a short distance below and more than 1 mile wide above the Fort.

This post was formerly known as "The Little Rapid," but has received the name it now bears in honour of the present Chief Commissioner of the Hudson's Bay Company.

W. Ogilvie, in his report of 16th July, 1889, states:

"Some slight attempts at cultivation had been made, but I do not consider them a fair test of the capabilities of the place. When I was there on 15th August, 1888, the people were gathering blueberries, then fully ripe and as large and well flavoured as they are in Ontario. Ripe strawberries were found on 9th August 90 miles below this and a few raspberries soon afterwards. Above the Fort, wild gooseberries and black currants were found in abundance, some of the small islands being literally covered with the bushes. The goose-

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berries were large and well flavoured, and the currants would compare favourably with the same fruit as cultivated in the vicinity of Ottawa, the black currants being especially large and mellow. This was in the middle of August, in latitude  $63^{\circ}$ . NOTE.—See "White Fish Lake" in Addenda.

### YORK FACTORY.

On west side of Hudson's Bay and on a tongue of land between the Rivers Nelson and Hayes. Lat.  $57^{\circ} 0' 3''$ ; Long.  $92^{\circ} 28'$ .—(Lieut. Gordon.)

The Church of England has a Mission here for the Indians, the number of whom has not been ascertained.

No R.C. Mission at this station.

Summer mean temperature..... + 58.17 in 1886—*Lieut. Gordon.*

Winter do ..... —17.19 do do

Highest temperature..... + 68.30 July, 1882 do

Lowest do ..... { —27.26 Jan., 1882 do  
—52.00 certain years.

Number of days' rain in 1886, 44; inches of rain, 25.10.

do snow in 1886, 95; do snow, 70.10.

Hayes River opens 9th May to 1st June—1828 to 1890.

do closes 3rd Nov. to 9th Dec—1828 to 1890.

This river is the route followed by the H. B. Company's boats towards Norway House at the foot or north end of Lake Winnipeg.

Trout, salmon and a very fine species of whitefish are abundant in the Nelson and Hayes Rivers.

Nelson River freezes to a depth of 5.75 feet in Dec., Jan., Feb., March.

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In April and May the soil is frozen to a depth of from 30 to 48 inches.

In June, July and August the thaw penetrates the ground from 10 to 40 inches, and sometimes more, according to locality.

A short distance in the country, the ground is not frozen in summer. It is completely thawed out; drove pole 6 feet in ground—no frost—*Dr. Bell*, 1880.

Snow seldom falls during the last three months of the year.

Potatoes are grown at this station every year; also turnips, radishes and plants.

For more than 200 years from two to five sailing vessels, on an average, frequently with war-ships conveying them, have sailed annually from Europe and American ports to Port Nelson (York Factory) and other ports on Hudson Bay, and returned with cargoes the same season.

The average date of 116 arrivals of the Hudson's Bay Company's ships at York Factory, is about 4th Sept. Of the 116 arrivals, 48 were in August, the earliest being on the 6th; the latest was on the 7th of October, on which occasion the vessel wintered in the bay.

Lieut. Gordon, in his report of 1886, states that the estuary of the Nelson River is one of the most dangerous places for vessels to go to, and that no expenditure of money can make it a desirable place for shipping.

His ship was lying 9 miles from the nearest land and 28 miles from the proposed terminus of the railway from Winnipeg and was yet but little more than a mile from the point of a shoal, with only 6 feet of water on it and a tide of nearly 3 knots.

For further details, see Hudson's Bay.

## FORT YUKON.

In Alaska, United States Territory, at junction of Yukon and Porcupine Rivers.

Lat.  $66^{\circ} 31' N.$ ; Long.  $145^{\circ} 20' W.$ , per Map, Dept. Int., 1887.

Barley is grown at this station.

## YUKON DISTRICT.

## YUKON RIVER AND TRIBUTARIES.

*From Chilkoot Pass, or Lake Bennett, to the Alaska boundary, west of Fort Reliance.*

From Lat.  $60^{\circ}$  and Long.  $135^{\circ}$  to Lat.  $65^{\circ} 15'$  and Long.  $141^{\circ}$

Mr. W. Ogilvie, Dominion Land Surveyor, in his report of 16th July, 1889, describes the country traversed by him in the Yukon District and elsewhere in 1887.

After describing the country seen along his route, from the Chilkoot Pass to the boundary beyond Fort Reliance, he states:—

Without the discovery and development of large mineral wealth, it is not likely that the slender agricultural revenues of the region will ever attract attention, at least until the better parts of our Territories are crowded.

In the event of such discovery some of the land might be used for the production of vegetables for the miners; but even in that case, with the transport facilities which the district commands, it is very doubtful if it could compete profitably with the south and east.

The Yukon has a course of 2,200 miles from its source to the ocean.

The river is not generally clear of ice until between the 25th of May and the 1st of June, and heavy frosts occur early in September, and sometimes earlier.

At the boundary, 687.55 miles from Haines Mission, Chilkoot Inlet, there are two flats of several hundreds of acres each; one on the west side, the other three miles above it, on the east side. Both of these are covered with poplar, spruce and white birch, also, with some willows and some small pine.

In making preparations for the foundation of our house at our winter quarters near the boundary, we had to excavate in the bank of the river, and in an exposed place, where the sun's rays would reach the surface without hindrance from trees or other shade, we found the depth to the perpetually frozen ground to be not more than two feet. In the woods where the ground is covered with over a foot of moss, the frozen ground is immediately below the moss. On this the timber is generally small and of very slow growth, as is evident from the number of annual rings of growth. I have seen trees of only three or four inches in diameter which were upwards of one hundred and fifty years old.

## YUKON RIVER NAVIGATION.

From the mouth of the river on Behring Sea, across United States Territory, the distance to the International Boundary Line at  $141^{\circ}$  of west longitude is about 1,500 miles; thence across Canadian Territory to the confluence of Lake Bennett, the distance is about 639.34 miles.

The confluence of the Yukon and Porcupine Rivers is about 200 miles N. W. from the International Boundary Line, according to Capt. C. W. Ray-

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mond of the United States Corps of Engineers, who was there for some time in 1869. It is 412 feet above the sea, which gives a fall of 1·9 per mile on the 200 miles.

Three steamboats, the "Yukon," the "St. Michel" and the "Explorer," belonging to the Alaska Commercial and Fur Trading Company, navigate the river; they are small and carry little or no freight, but they tow loaded barges; the Company intended to put a larger boat, on the river in 1888, one that would carry 120 to 200 tons of freight and make 5 to 7 miles per hour up stream on the upper portion of the river, instead of the present stern-wheel boats which scarcely reach 3 or 4 miles an hour.

There is another steamer, the "New Rocket," which takes supplies to the Forty Mile River; she is about 40 feet long, 9 to 10 feet beam, with about 2 feet draught; she was 22 days out from St. Michel's Island near the mouth of the Yukon; she endeavoured to ascend the Stewart River with supplies for the miners but could not overcome the current.

### YUKON DISTRICT.

#### FISH.

With the exception of a small species locally called the Arctic trout, fish are not numerous in the district.

On the way down, salmon were first seen twenty or twenty-five miles above Five Finger Rapids, 316·74 miles below Lake Bennett. After coming up the river Yukon for a distance of 2,000 miles from the sea, they are poor, and would not realize much on the market.

#### PLANTS.

A small collection of plants was made along the river, and those obtained above the Pelly, were taken home by Dr. Dawson of the Geological Survey. (See Appendix of Ogilvie's Report).

#### SNOW, ICE, ETC.

First snow of the season on the mountain tops, 10th Sept., 1887.

do in the valley, 23rd Sept., 1887.

Temperature of river water, +38° 1st Oct., 1887.

During winter, at the International Boundary Line, the temperature was as follows :—

	Mean Minimum at 7:30 a.m.	Mean Minimum at 1:30 p.m.
1887—October.....	+18·5	—
November.....	— 5·1	—
December.....	—33·6	—27·6
1888—January.....	—25·3	—15·3
February.....	—16·8	— 4·3

First ice drifting in river, on 21st Oct., 1887.

Ice set in river, on 15th Nov., 1887.

Thickness of ice, 14½ inches, on 1st Dec., 1887.

do 40½ do on 3rd Jan., 1888.

do 48 do on 3rd Feb. 1888.

do 48½ do on 2nd March, 1888.

9—12\*\*

## YUKON DISTRICT.

## ANIMALS.

The principal furs procured in the district are the silver-grey and black fox, the number of which bears a greater ratio to the number of red foxes than in any other part of the country. Marten and sable are numerous, also lynx; but otter are scarce, and beaver almost unknown.

Game is not now as abundant as before mining began, and it is difficult, in fact impossible, to get any close to the river. The Indians have to ascend the tributary streams to get anything worth going after.

On the uplands, vast herds of cariboo still wander, and when the Indians encounter a herd, they allow very few to escape, although they do not require the meat.

The mountain sheep (Big-horn) and mountain goats exist everywhere in the territory; they are seldom seen from the river.

## BIRDS.

These are scarce. Some ravens, magpies and partridges were seen, together with a few white-headed eagles, and some owls.

Wild geese and ducks are plentiful in their season, and of ducks there are many more species than in any other part of the territory. Most of these were observed towards the head of the River Porcupine.

## MINERALS.

A seam of coal was found on the Lewes River, about six miles above Five Finger Rapids. This seam is about three feet thick; the coal looks good. G. C. Hoffman describes it as a lignite coal. Dr. Dawson made an examination of this seam. Coal seams were also seen six miles below Five Finger Rapids and near Coal Creek, five miles below Forty-Mile River. Some of the seams measure five feet and one of them seven feet.

## METALS.

Mr. Ogilvie states: It is probable that we have not less than 1,400 miles of stream in the Canadian part of the Yukon district, upon all of which gold can be found.

Stewart River is the first in the district on which mining to any extent has been done. I have heard the amount of gold found there in 1885-86 estimated at \$300,000. The highest amount of any one man's earnings was about \$6,000. This may be true, as many agree that \$30 per day per man was common on many of the bars on the Stewart River.

The quantity of gold found in 1885-86, by about forty miners, on the Forty Mile River, is estimated at from \$112,500 to \$130,000.

## YUKON AND ATHABASCA DISTRICTS.

*Freight Rates.*

Messrs. Harper, McQuestion and Co., are the only persons who have been doing business in the country, apart from gold mining, since 1873. They occupied Fort Reliance for some years and afterwards established a trading post at Stewart River in 1886 on account of the miners who were working there. In 1887 they established a post at Forty-Mile River, whither nearly all the miners went when coarse gold had been found.

They do a sort of commission business for the Alaska Commercial and Fur Trading Company. Their freight charges are \$30 per ton for goods paid for in furs and \$125 per ton for goods paid for in cash, for the use of the miners.

The prices paid in 1887, were \$17.50 for flour per 100 lbs.; \$40 for bacon per 100; \$18 for beans per bushel; \$30 for sugar per 100; \$1.25 for tea per lb. Their sales during the season, amount to about \$60,000.

## ATHABASCA DISTRICT.

From Calgary on the Canadian Pacific Railway to Edmonton on the North Saskatchewan, the distance by cart trail is about 196 miles, or 192 in a direct line. All the material brought into the northern district has to be freighted along this trail and the machinery for several steam mills has been hauled over it. The freight rates from Calgary to Edmonton are from one and a-half to three cents per pound, according to the state of the roads, and the necessities of the importers.

## YUKON TERRITORY.

## FROM Chilkoot Inlet at the head of Lynn Inlet on the Pacific Coast.

Distances from Haines Mission.	Miles.	Distances from Haines Mission.	Miles.
Haines Mission, Chilkoot Inlet at the head of Lynn Channel, to entrance of Taiya Inlet.....	4-79	Head of White Horse Rapids.....	145-07
Head of Taiya Inlet.....	20-12	Foot of White Horse Rapids.....	145-45
Head of canoe navigation, Taiya River.....	26-02	Tahk-heena River.....	160-04
Forks of Taiya River.....	28-50	Head of Lake Labarge.....	173-19
Summit of Taiya Pass.....	34-88	Foot of Lake Labarge.....	204-34
Landing at Lake Lyndeman.....	43-18	Tes-lin-too River (Newberry of Schwatka).....	236-00
Foot of Lake Lyndeman.....	47-61	Big Salmon River of miners (D'Abbadie of Schwatka).....	269-45
Head of Lake Bennett.....	48-21	Little Salmon River of miners (Daly of Schwatka).....	305-66
Boundary line B. C. and N. W. T. (Lat. 60°).....	58-21	Five Finger Rapids (Rink Rapids of Schwatka).....	364-95
Foot of Lake Bennett.....	73-97	Pelly River.....	423-41
Foot of Cariboo Crossing (Lak Nares of Schwatka).....	76-56	White River.....	519-23
Foot of Tagish Lake.....	93-37	Stewart River.....	529-03
Head of Marsh Lake.....	98-27	Fort Reliance.....	602-32
Foot of Marsh Lake.....	117-33	Forty-Mile River.....	647-20
Head of Canon.....	143-06	Boundary line between Canada and Alaska, U. S., at 141° Long. W.....	687-55
Foot of Canon.....	143-68		

(See Report of William Ogilvie, D. L. S., 16th July, 1889, to Department of Interior, on his Exploratory Survey of part of the Lewes, Tat-on-Due, Porcupine, Bell, Trout, Peel and Mackenzie Rivers.)

## YUKON TERRITORY.

FROM Fort McPherson, west of the Mackenzie, up to Fort Chipewyan, Lake Athabasca.

Distances from Fort McPherson.	Miles.	Distances from Fort McPherson.	Miles.
Mackenzie River proper .....	32.1	River between Two Mountains.....	628.0
Red River .....	60.1	Willow Lake River.....	667.0
A large river entering on the east side, name unknown.....	120.5	Ne-hauner River.....	683.3
Loon River.....	250.8	Fort Simpson.....	758.5
Hare Indian River .....	272.4	Head of Line.....	829.5
Fort Good Hope .....	274.7	Yellow Knife River.....	855.6
Ramparts .....	283.6	Little Lake .....	892.0
Beaver River.....	295.7	Fort Providence.....	916.0
Sans Sant Rapids.....	322.7	Great Slave Lake.....	962.0
Mountain River.....	323.3	Hay River.....	997.0
Caracajou River.....	328.0	Buffalo River.....	1,024.0
Great Bear River.....	444.0	Buffalo Creek .....	1,071.0
Fort Norman.....	444.2	Fort Resolution .....	1,083.0
Gravel River.....	509.3	Fort Smith.....	1,273.5
Riv. le Vieux Grand Lac .....	550.5	Head of Rapids.....	1,287.5
Fort Wrigley.....	624.5	Peace River.....	1,358.9
		Fort Chipewyan .....	1,390.0

(See Report of W. Ogilvie, 16th July, 1889.)

## YUKON DISTRICT.\*

*Proposed route to gold mines, at head waters of the Yukon River, and to the Cassiar Mines, B.C. :—*

Waggon road, Edmonton to head of Pelly River.....	Miles. 840
Edmonton to Athabasca Landing (road built) .....	90
Post, Lesser Slave Lake.....	160
Lesser Slave Lake to Peace River Landing (road built) ..	90
Peace River Landing to Fort Halket on the Liard.....	300
Fort Halket to Lake Frances, head of Pelly River.....	200
	840

The cost going to the mines by the Coast, with two years' supplies, at least, \$400.

The cost by the proposed new route would be \$250.

By the coast route supplies must be purchased in Duncan or Sitka, in American territory.

The Pelly is navigable from Houle Rapids, 25 miles from Pelly Banks Post to junction of Porcupine River—1,000 miles without a break, while on the other hand the Lewis River, down which miners from the coast must travel, is broken by numerous rapids and three lakes, out of which the ice does not move until July.

The present cost of provisions on the Yukon, is :—

	Per 100 lbs.		Per 100 lbs.
Flour .....	\$10	Beans .....	\$25
Bacon .....	25	Apples.....	25

\*See Report of Senator Schultz' Committee, 1888, p. 155.

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.....	683.3
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## PART VIII.

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### BOUNDARIES

BETWEEN CANADA AND THE UNITED STATES

AND OF THE

PROVINCES OF NOVA SCOTIA, NEW BRUNSWICK AND QUEBEC,  
—OF THE LABRADOR COAST UNDER THE GOVERNMENT OF  
NEWFOUNDLAND,—OF THE PROVINCES OF ONTARIO, MANI-  
TOBA AND BRITISH COLUMBIA,

AND ALSO OF THE

PROVISIONAL DISTRICTS OF KEEWATIN, ASSINIBOIA, SASKAT-  
CHEWAN, ALBERTA AND ATHABASCA.

---

AUTHORITY BY WHICH THE BOUNDARIES OF CANADA AND OF THE PROVINCES  
AND PROVISIONAL DISTRICTS WERE FIXED.

CANADA.

Convention between Great Britain and the United States, 1818.

Decision of Commissioners under VI and VII Articles of the Treaty of Ghent, 1812.

Southern boundaries commencing from the East:—

Ashburton Treaty, 1842.

Washington Treaty, 1846.

Decision of the Emperor of Germany, 1872.

*Nova Scotia.*

Described by Bouchette.

*New Brunswick.*

Imperial Act, 14 and 15 Vic., cap. 63, 1851-52, and Ashburton Treaty, 1842.

*Quebec and Labrador.*

Southern boundary by 14 and 15 Vic., cap. 63, 1851-52, and Ashburton Treaty, 1842.

Western boundary by Governor General's Proclamation, November, 1791, and 23 Vic., cap. 21, 1860.

Northern boundary between Provinces and North-East Territories—disputed.

North-Eastern boundary between Province and North-East Coast of Labrador, under Government of Newfoundland, as described in Governor Bannerman's Commission, 10th August, 1863.

*Ontario.*

Southerly boundary by VI Article of the Treaty of Ghent, 24th December, 1814, and the decision of Commissioners appointed thereunder, 18th June, 1822.

*Manitoba.*

44 Vic., cap. 14, 1881.

*British Columbia.*

Paris Convention, 1825.

29 and 30 Vic., cap. 67, sec. 7, 1866-67; 47 Vic., cap. 14, Statutes B. C., 1884.

PROVISIONAL DISTRICTS.

*Kewatin.*

39 Vict., cap. 21, 1876. Proclamation, 7th May, 1886.

*Assiniboia, Saskatchewan, Alberta, Athabasca.*

Order in Council, 8th May, 1882.

## DESCRIPTION OF BOUNDARIES.

### CANADA.

By the Ashburton Treaty, 1842, it was agreed that the line of boundary should be as follows:—

Beginning at the monument at the source of the St. Croix, thence north following the exploring line run in 1817 and 1818 to its intersection with the River St. John; thence up the middle of the main channel of that river to the mouth of the River St. Francis; thence up the channel of the River St. Francis to the outlet of Lake Pohenagamook; thence south-westerly in a straight line to a point on the north-west branch of the River St. John which point shall be ten miles distant from the main branch of the St. John and seven miles from the summit of the highlands which divide the rivers which empty themselves into the River St. Lawrence from those which fall into the River St. John; thence in a straight line about south, 8 degrees west to the point where the parallel of latitude  $46^{\circ} 25'$  north intersects the south-west branch of the St. John's; thence southerly by the said branch to the source thereof in the highlands at the Metgarmette Portage; thence down along the said highlands to the head of Hall's Stream; thence down the middle of said stream till the line thus run intersects the old line of boundary surveyed by Valentine and Collins previously to 1774 as the 45th degree of north latitude, and from said

### ONTARIO.

Westerly, northerly and easterly boundaries, by Canada Act, (Ontario Boundary), passed by Imperial Parliament, 52-53 Vic., cap. 28, 12th August, 1889.

the shores to a point opposite the north-west corner or angle of said island; thence to and along the middle of the main river—as expressed in detail in the said decision—to the south of Grand or Long Island, keeping near its southern shore and passing to the north of Carlton Island until it arrives opposite to the south-western point of said Long Island in Lake Ontario; thence passing to the north of Grenadier, Fox, Stoney and the Gallops Islands in Lake Ontario, and to the south of the islands called “the Ducks” to the middle of the said lake; thence westerly along the middle of the said lake, to a point opposite the mouth of the Niagara River; thence to and up the middle of the said river—as described in said decision—to Lake Erie; thence southerly and westerly along the middle of Lake Erie in a direction to enter the passage immediately south of Middle Island; thence along the said passage proceeding to the north of Cunningham's Island and of the three Bass Islands and of the Western Sister and to the south of the Hen and Chickens and of the Eastern and Middle Sisters; thence to the middle of the Detroit River in a direction to enter the channel which divides

AUTHORITY BY WHICH THE BOUNDARIES OF CANADA AND OF THE PROVINCES  
AND PROVISIONAL DISTRICTS WERE FIXED.

CANADA.

Convention between Great Britain and the United States, 1818.

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44 Vic., cap. 14, 1881.

*British Columbia.*

Paris Convention, 1825.

29 and 30 Vic., cap. 67, sec. 7, 1866-67; 47 Vic., cap. 14, Statutes B. C., 1884.

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*Assiniboia, Saskatchewan, Alberta, Athabasca.*

Order in Council, 8th May, 1882.

## DESCRIPTION OF BOUNDARIES.

### CANADA.

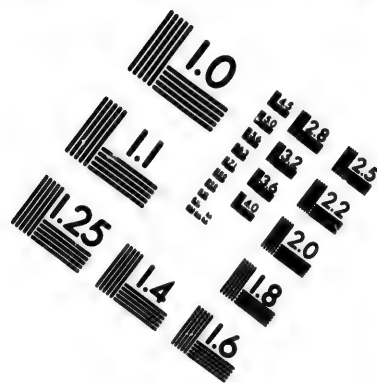
By the Ashburton Treaty, 1842, it was agreed that the line of boundary should be as follows:—

Beginning at the monument at the source of the St. Croix, thence north following the exploring line run in 1817 and 1818 to its intersection with the River St. John; thence up the middle of the main channel of that river to the mouth of the River St. Francis; thence up the channel of the River St. Francis to the outlet of Lake Pohenagamook; thence south-westerly in a straight line to a point on the north-west branch of the River St. John which point shall be ten miles distant from the main branch of the St. John and seven miles from the summit of the highlands which divide the rivers which empty themselves into the River St. Lawrence from those which fall into the River St. John; thence in a straight line about south, 8 degrees west to the point where the parallel of latitude  $46^{\circ} 25'$  north intersects the south-west branch of the St. John's; thence southerly by the said branch to the source thereof in the highlands at the Metgarrette Portage; thence down along the said highlands to the head of Hall's Stream; thence down the middle of said stream till the line thus run intersects the old line of boundary surveyed by Valentine and Collins previously to 1774 as the 45th degree of north latitude, and from said point of intersection west along the said line to the St. Lawrence River.

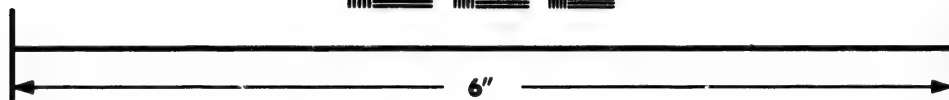
By the decision of Commissioners appointed under the VIth Article of the Treaty of Ghent, signed at Utica 18th June, 1822, the boundary was carried west as follows:—

Beginning at a stone monument erected by Andrew Ellicott in 1817 on the south shore of the St. Lawrence, which monument bears south  $74^{\circ} 45'$  West and 1840 yards distant from the stone church in the village of St. Régis and indicates the point at which the 45th parallel of north latitude strikes the said river; thence running north  $35^{\circ} 45'$  west into the river on a line at right angles with the southern shore to a point 100 yards south of Cornwall Island; thence turning westerly and passing around the southern and westerly sides of said island keeping 100 yards distant therefrom and following the curvature of the shores to a point opposite the north-west corner or angle of said island; thence to and along the middle of the main river—as expressed in detail in the said decision—to the south of Grand or Long Island, keeping near its southern shore and passing to the north of Carlton Island until it arrives opposite to the south-western point of said Long Island in Lake Ontario; thence passing to the north of Grenadier, Fox, Stoney and the Gallops Islands in Lake Ontario, and to the south of the islands called “the Ducks” to the middle of the said lake; thence westerly along the middle of the said lake, to a point opposite the mouth of the Niagara River; thence to and up the middle of the said river—as described in said decision—to Lake Erie; thence southerly and westerly along the middle of Lake Erie in a direction to enter the passage immediately south of Middle Island; thence along the said passage proceeding to the north of Cunningham's Island and of the three Bass Islands and of the Western Sister and to the south of the Hen and Chickens and of the Eastern and Middle Sisters; thence to the middle of the Detroit River in a direction to enter the channel which divides





A resolution test chart featuring several groups of horizontal and vertical lines of varying thicknesses. Each group is accompanied by a numerical value indicating its resolution. The values include 1.0, 1.1, 1.25, 1.4, 1.6, 1.8, 2.0, 2.2, 2.5, 2.8, 3.2, 3.6, 4.0, 4.5, 5.0, 5.6, 6.3, 7.1, 8.0, 9.0, 10, 11.2, 12.5, 14, 16, 18, 20, 22.5, 25, 28, 32, 36, 40, 45, 50, 56, 63, 71, 80, 90, 100, 112, 125, 140, 160, 180, 200, 225, 250, 280, 320, 360, 400, 450, 500, 560, 630, 710, 800, 900, 1000, 1120, 1250, 1400, 1600, 1800, 2000, 2250, 2500, 2800, 3200, 3600, 4000, 4500, 5000, 5600, 6300, 7100, 8000, 9000, 10000.



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Bois-Blanc and Sugar Islands; thence up the said channel—as described in said decision—to Lake St. Clair; thence through the middle of said lake in a direction to enter the River St. Clair through the old ship channel; thence along the middle of said channel—as described in said decision—to Lake Huron; thence through the middle of Lake Huron in a direction to enter the strait or passage between Drummond's Island and the Little Manitou Island; thence through the middle of the passage; thence turning northerly and westerly around the eastern and northern shores of Drummond's Island—as more particularly described in said decision—until it strikes a line passing across the river at the head of St. Joseph's Island and at the foot of the Neebish Rapids.

The same Commissioners were authorized to determine the line from the water communication between Lake Huron and Lake Superior to the most north-western point of the Lake of the Woods.

By the Convention between Great Britain and the United States, signed at London, October 20, 1818, it was agreed that a line drawn from the most north-western point of the Lake of the Woods along the 49th parallel of north latitude, or, if the said point shall not be on the said parallel, then that a line drawn from the said point due north or south, as the case may be, until the said line shall intersect the said parallel, and from the point of such intersection due west along and with the said parallel, shall be the line of demarcation between the two countries from the Lake of the Woods to the Stoney Mountains.

By the Treaty signed at Washington, 15th June, 1846, the line of boundary was continued westward along the said 49th parallel of north latitude to the middle of the channel which separates the continent from Vancouver's Island; and thence southerly, through the middle of the said channel and of Fucu's Straits to the Pacific Ocean.

A difference of opinion having arisen between the two countries, a treaty was made at Washington, on 8th May, 1871, by which the matter was left to the Emperor of Germany.

On 21st October, 1872, he decided that the claim of the Government of the United States, viz:—that the line of boundary between the United States and Canada, should be run through the canal of Haro, as most in accordance with the Washington Treaty of 1846.

## NOVA SCOTIA.

(Including Cape Breton.)

The Province is an extensive peninsula connected with the Continent of North America by a narrow isthmus of about 15 miles in width, between Bay Verte, in the Straits of Northumberland, and Cumberland Basin, at the eastern extremity of the Bay of Fundy. It is situate between  $43^{\circ} 25'$  and  $47^{\circ}$  north latitude and  $59^{\circ} 40'$  and  $66^{\circ} 30'$  longitude west from Greenwich. It is bounded on the north-west by the Bay of Fundy and by the boundary line extending from Cumberland Basin, in Chignecto Bay, to the Bay Verte, which separates it from the County of Westmoreland in New Brunswick; on the north and west by the Gulf of St. Lawrence; and on the south, east and south-east by the Atlantic Ocean.

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### CAPE BRETON.

*The Island of Cape Breton, which is separated from the mainland by the Gut of Canso, derived its name from the Basque fishermen who first gave it to eastern promontory of the island in remembrance of their old home near Bayonne. The Indian name was "Coonumahghee." It is about 110 miles long by 80 miles wide. After its capture on 26th July, 1758, it remained a separate province until 1th October, 1763, when it was annexed to Nova Scotia. It was again separated in 1784, and remained a separate province under the control of a Lieutenant-Governor and Council of Nine until the 9th October, 1820, when it was re-annexed.*

*Note.*—See Brown's *History of Cape Breton*, 1869.

### PRINCE EDWARD ISLAND.

Formerly called Ile St.-Jean under the French régime, is situated in the southern portion of the Gulf of St. Lawrence, and is bounded on the south by Northumberland Strait. It is 40 miles from Cape Breton Island, 15 miles from Nova Scotia and 9 miles from New Brunswick. The extreme length is 140 miles, the extreme width 34 miles, and the area is 2,000 square miles.

This island surrendered to the English under Lord Rollo in 1758; its name was changed to that of Prince Edward in 1799.

*NOTE.*—For further particulars see page 73.

### NEW BRUNSWICK.

The boundary between New Brunswick and Canada was settled by the Imperial Act 14 and 15 Vic., cap. 63, in conformity with an award made by arbitrators appointed by the Governor General and Lieutenant Governor, as follows:—

On the west by the boundary of the United States as traced in 1842, from the source of the St. Croix to a point near the outlet of Lake Pech-la-wee-kaacoonies, or Lake Beau; thence by a straight line connecting that point with another point to be determined at the distance of one mile due south from the southernmost point of Long Lake; thence by a straight line drawn to the southernmost point of the Fief Madawaska and Témiscouata, and along the south-eastern boundary of those fiefs to the south-east angle of the same; thence by a meridional line northwards till it meets a line running east and west, and tangent to the height of land dividing the waters flowing into the River Rimouski from those tributary to the St. John; thence along this tangent line eastward until it meets another meridional line tangent to the height of land, dividing waters flowing into the River Rimouski from those flowing into the Restigouche River; thence along this meridional line to the 48th parallel of latitude; thence along that parallel to the Mistouche or Petapedia River, and thence down the centre of the stream of that river to the Restigouche; thence down the centre of the stream of the Restigouche to its mouth in the Bay of Chaleurs, and thence through the middle of that bay to the Gulf of St. Lawrence; the islands in the said Rivers Mistouche and Restigouche to the mouth of the latter river at Dalhousie being given to New Brunswick.

By the Treaty of 1842 (Ashburton Treaty), it was agreed that the line of boundary between New Brunswick and the United States should be as follows:—

Beginning at the monument at the source of the St. Croix; thence north following the exploring line run in 1817 and 1818 to its intersection with the River St. John; thence up the middle of the main channel of that river to the mouth of the River St. Francis; thence up the channel of the River St. Francis to the outlet of Lake Pohenagamook.

## MEMORANDUM

RESPECTING

## The Northern Boundary Line of the Province of Quebec,

ADDRESSED TO THE COMMITTEE OF THE LEGISLATIVE ASSEMBLY APPOINTED TO  
ENQUIRE INTO THIS MATTER.

The Province of Ontario, as an integral part of this section of North America, formerly known as New France, lays claim to an extension of territory reaching northward to the southern shore of James' Bay. The superficies of the territory thus claimed is about one hundred and twelve thousand two hundred and forty square miles. The space lying between the meridian of the confluence of the Mississippi and the Ohio, and the line of separation between the waters of the St. Lawrence and those of Hudson's Bay towards the west (comprising about 6,000 miles) is not included within this superficies.

The Province of Quebec, forming also a part of what was once New France, owes it to herself to reclaim, as part of her heritage, a similar augmentation of territory, relying also, therefor, upon the pretensions and rights of the French Crown before the cession, the French having been admitted to be justly entitled, as first occupants, to the whole of the country of Canada, or New France, as far as the Arctic Circle.

It is not, however, upon such pretensions that the Governments of Ontario and Quebec may now rely, but upon the data and the facts discussed during the negotiations which took place between France and England respecting the positions to be held by their respective nationalities in America, at the time of the Treaty of Utrecht.

It appears from the result of the searches made by the Abbé Verreau at the Ministry of Foreign Affairs in Paris, (extract from the Utrecht negotiations respecting North America,—memorandum of Pontchartrain, 2nd January, 1712,—date of the Treaty of Utrecht, 1713)—that "the English envoys, on their maps, established the limits of Hudson's Bay by drawing a straight line from the coasts of Labrador to those of the Pacific. The French line deviated from this only from Cap Enchanté to the foot of Lake Nemisko, where it connected again with the first line. This concession is made in order to facilitate matters. But however these lines may be disposed and settled, it must be specified in the first case, that the line shall commence at the bottom of La Baie du Sud, shall strike immediately below and to the south of Lake Nemisko, and thence running west shall pass eight leagues above and to the north of Lac Supérieur des Sauvages Sioux. In the second case it will be necessary to specify, that the line shall commence twelve leagues above and to the north of Cap Enchanté, shall pass one league above and to the north of Lake Mistassini, and thence running west shall pass six leagues above and to the north of Lac Supérieur des Sauvages Sioux."

It is well to remark that "Lac Supérieur des Sauvages Sioux" here referred to, cannot be the great "Lake Superior" properly so-called. This vast fresh water sea has never been named, on any map with which I am acquainted, "Lake of the Sioux Indians." It is named Lake Superior, Lake Tracy, Grand Lake, etc. On Ducreux's map of New France, 1660, inscribed in Latin, it is called "Lacus Superior";—on that of Franquelin, 1688, "Lac Supérieur." The "Relations of the Jesuits" say nothing else on this subject. But the Lake of the Sioux Indians is a distinct lake, clearly indicated on Franquelin's map, 1688, on which it is named "Lac Buade," or des "Isatis" or Lake of the Sioux Nation. It is designated in the same way on Mitchell's map, 1755; on the map of the United States, by Lattre, 1784; and on that of North America by Herman Moll. See copies herewith.

The position of Lake of the Sioux corresponds nearly with that of "Lac Seul" on the maps of the present day. Then, if a line be drawn eight leagues north of this lake, running eastward, it should strike the head of James' Bay, pass by the foot and to the north of Lake Nemisko, and meet a line drawn from Cape Grimmington, a few miles north of Lake Mistassini. In this way, the two lines referred to in the preceding extract, although established according to the somewhat imperfect geographical knowledge of the last century, meet exactly where it was intended they should, and as they are laid down on the most recent and carefully drawn maps of our own time.

The boundary line thus laid down must have been accepted, for it may be seen, in part, clearly indicated on the English map published by Mitchell in 1755, an acknowledged authority. See copy herewith.

The adjustment of the northern boundary line of the Province of Quebec, should, it appears to me, under these circumstances, meet with the full approval of our Legislature. Unfortunately there are obstacles in the way of the execution of such a scheme in its entirety, which involve the adoption of certain modifications suggested by the actual condition of affairs. Thus, all that portion of the Atlantic coast known as Labrador, has been ceded by England to the Government of Newfoundland, and has for a long time been under the jurisdiction of the latter. To attempt now to reclaim this territory would lead to diplomatic complications which the Federal Government would certainly not bring about. But it appears to me that there is a middle course which might be adopted and which would prove acceptable to all the parties interested.

The pretensions of the old French regime, thus modified, would still comprise a vast region of the highest importance to Quebec, and which in extent and value would be a fair equivalent of the territory claimed by Ontario.

The claim of the Province of Quebec might be defined as follows:—

All the country bounded on the west by a prolongation of the present boundary line between Ontario and Quebec to the south shore of James' Bay, and by the shore line of this bay as far as the mouth of East Main River; on the north by the right bank of East Main River from its mouth to its source, thence by a line drawn to the northernmost waters of the Grand River Esquimaux, Ashuanipi or Hamilton, and by the left bank of this river to its mouth in Rigolet Bay (Hamilton's Inlet), on the east and north-east by the meridian of the easternmost point of the sources of the River St. Paul or Little Esquimaux, and on the east by this same river to the fifty-second degree of north latitude, following this parallel to its intersection by the meridian of Anse au Blanc Sablon, the present recognized boundary of this province.

This definition comprises a territorial increase of about 116,550 miles in superficies. To pretend to go further, as far as Hudson's Strait, would be in my opinion to include too much. This immense boreal territory, comprising an extent of about 282,800 square miles, would eventually become a source of considerable wealth, but for a long time to come would, if only on account of the administration of justice, involve great expense, while the amount of revenue from it would be very problematical. Further, a careful study of the accounts of the deliberations which were held apart from the Utrecht negotiations, will show that the French settlements never extended very far towards the north on the east coast of Hudson's Bay, and that they never reached the south shore of Hudson's Strait. The arguments of the English Commissioners on this point appear to me very strong.

On the other hand, the proof furnished by the French Commissioners, of prior possession by their Canadian compatriots of the south and south-west shores of this bay is so clear and convincing that it completely justifies the claim of Ontario, at the same time that it establishes the rights of Quebec to the lands in rear of the present boundaries beyond the height of land, which are about comprised within the general description given above. See report of Mr. Douglas Brymner, Archivist, 1883, p. p. 173 to 201.

The boundaries or descriptions to which I have just alluded are shown on the map of the Dominion of Canada marked "A," hereto annexed, and to which I have the honour to direct special attention for the better comprehension of the subject.

(Sgd.)

E. E. TACHÉ,  
A. C. C. L.

Department of Crown Lands,  
Quebec, 26th May, 1886.

Copy received from E. E. Taché, Assistant Commissioner of Crown Lands, Quebec. { G. F. BAILLAIRGÉ,  
See No. 94538, 10-12 January, 1889. { Dep. Min. Pub. Wks., Canada.

[The *Gazette*, Montreal, Tuesday, 4th February, 1890.]

#### "THE NORTHERN FRONTIER OF QUEBEC.

"After recess, Hon. Mr. Mercier moved the following resolution regarding the northern frontiers of the Province ;

"Resolved, That in the opinion of this House the northern frontiers of the Province of Quebec are and should be fixed and determined as follows :—From a point on the southern shore of James' Bay intersected by a due north line produced from the head of Lake Temiscamingue, thence northerly and easterly along the shores of the said bay to the mouth of the River East Main, thence ascending and following the centre of the said stream easterly to its source, a distance of about four hundred and eighty miles ; thence by a line drawn easterly a distance of one hundred and forty miles, more or less, to strike the nearest points of Ashuanipi or Hamilton River, thence descending and following the centre of the said river until it intersects the boundaries of Newfoundland Territory in Labrador, and, lastly, following the said last named boundaries southerly to Blanc Sablon, on the north shore of the Gulf of St. Lawrence.

That an humble address be presented to His Excellency the Governor General of the Dominion, based on the present resolutions, praying His Excel-

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lency to adopt or cause to be adopted the measures necessary to establish and determine in a definite manner the northern frontiers of the Province of Quebec as set forth in the present resolutions.

## BOUNDARY BETWEEN CANADA AND NEWFOUNDLAND ON THE COAST OF LABRADOR.

From Blanc Sablon, eastward and northward, the east coast of Labrador is under the jurisdiction of Newfoundland, as described in Governor Bannerman's Commission.

See enclosure in No. 4 Despatch from Colonial Office, 10th August, 1863, or page 613 Journal of the Assembly of Newfoundland, 1864.

"Governor, Commander-in-Chief and Vice-Admiral over our said Island of Newfoundland and the islands adjacent, and all the coast of Labrador, from the entrance of Hudson's Straits to a line to be drawn due north and south from Anse Sablon on the said coast, to the 52° of north latitude, and all of the islands adjacent to that part of the said coast of Labrador, as also all forts and garrisons erected and established within the said Island, &c."

The western limit of the Government of Newfoundland is latitude 51° 25' north, to latitude 52° north, along longitude 57° 9' west, and includes Blanc Sablon and the Woody Islands. The northern boundary is Cape Chudleigh, in latitude 60° 37' north, longitude 65° west.—*See Addenda hereinafter.*

The above description will be better understood by the following:—

Their jurisdiction extends westward to the line 57° 9' of west longitude, running due north from Blanc Sablon on the Strait of Belle-Ile (including Blanc Sablon and the Woody Islands) on the parallel of 51° 25' of north latitude to the parallel of 52° of north latitude, and thence along the east coast of Labrador up to Cape Chudleigh at 60° 37' of north latitude, and at 65° of west longitude, at the mouth of Hudson's Strait.

## BOUNDARIES OF THE PROVINCE OF ONTARIO.

Chapter 28 of the Public General Acts, passed in the fifty-second and fifty-third years of the reign of Her Majesty Queen Victoria, being the fourth session of the twenty-fourth Parliament of the United Kingdom of Great Britain and Ireland, intitled: "An Act to declare the Boundaries of the Province of Ontario, in the Dominion of Canada." 12th August, 1889.

WHEREAS, the Senate and Commons of Canada in Parliament assembled, have presented to Her Majesty the Queen, the address set forth in the schedule to this Act, respecting the boundaries of the Province of Ontario:

And, whereas, the Government of the Province of Ontario have assented to the boundaries mentioned in that Address:

And, whereas, such boundaries so far as the Province of Ontario adjoins the Province of Quebec are identical with those fixed by the Proclamation of the Governor General issued in November, one thousand seven hundred and ninety-one, which have ever since existed:

And, whereas, such boundaries, so far as the Province of Ontario adjoins the Province of Manitoba are identical with those found to be the correct boundaries by a report of the Judicial Committee of the Privy Council, which Her Majesty the Queen in Council, on the eleventh day of August, one thousand eight hundred and eighty-four, ordered to be carried into execution :

And, whereas, it is expedient that the boundaries of the Province of Ontario should be declared by authority of Parliament in accordance with the said address :

Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal and Commons, in this Parliament assembled, and by the authority of the same, as follows :

1. This Act may be cited as the Canada (Ontario Boundary) Act, 1889.

2. It is hereby declared that the westerly, northerly and easterly boundaries of the Province of Ontario are those described in the address set forth in the Schedule to this Act.

### SCHEDULE.

*Address to the Queen from the Senate and House of Commons of Canada.*

We, your Majesty's most dutiful and loyal subjects, the Senate and Commons of Canada, in Parliament Assembled, humbly approach Your Majesty with the request that Your Majesty may be graciously pleased to cause a measure to be submitted to the Parliament of the United Kingdom, declaring and providing the following to be the westerly, northerly and easterly boundaries of the Province of Ontario, that is to say :—

Commencing at the point where the international boundary between the United States of America and Canada strikes the western shores of Lake Superior, thence westerly along the said boundary to the north-west angle of the Lake of the Woods ; thence along a line drawn due north until it strikes the middle line of the course of the river discharging the waters of the lake called Lac Seul, or the Lonely Lake, whether above or below its confluence with the stream flowing from the Lake of the Woods towards Lake Winnipeg ; and thence proceeding eastward from the point at which the before mentioned line strikes the middle line of the course of the river last aforesaid, along the middle line of the course of the same river (whether called by the name of the English River, or, as to the part below the confluence, by the name of the River Winnipeg) up to Lac Seul, or the Lonely Lake and thence along the middle line of Lac Seul or the Lonely Lake, to the head of that lake ; and thence by a straight line to the nearest point of the middle line of the waters of Lake St. Joseph ; and thence along that middle line until it reaches the foot or outlet of that lake, and thence along the middle line of the river by which the waters of Lake St. Joseph discharge themselves to the shore of the part of Hudson's Bay, commonly known as James' Bay ; and thence south-easterly following upon the said shore to a point where a line drawn due north from the head of Lake Temiscamingue would strike it ; and thence due south along the said line to the head of the said lake ; and thence through the middle channel of the said lake into the Ottawa River ; and thence descending along the middle of

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the channel of the said river to the intersection by the prolongation of the western limits of the Seigneurie of Pigaud, such mid-channel being as indicated on a map of the Ottawa Ship Canal Survey, made by Walter Shanly, C. E., and approved by Order of the Governor General in Council, dated the twenty-first July, one thousand eight hundred and eighty-six; and thence southerly following the said westerly boundary of the Seigneurie of Rigaud to the south-west angle of the said Seigneurie; and thence southerly along the western boundary of the augmentation of the Township of Newton to the north-west angle of the Seigniory of Longueuil, and thence south-easterly along the south-western boundary of said Seigniory of New Longueuil to a stone boundary on the north bank of the Lake of St. Francis, at the cove west of Point au Baudet; such line from the Ottawa River to Lake St. Francis being as indicated on a plan of the line of boundary between Upper and Lower Canada, made in accordance with the Act 23 Victoria, Chapter 21, and approved by Order of the Governor General in Council, dated the 16th of March, 1861.

### PROVINCE OF MANITOBA.

By the Act 44 Vic., chap. 14, assented to 21st March, 1881, the boundaries of the Province of Manitoba were extended easterly to the eastern limit of the District of Keewatin; westerly to a line drawn between the twenty-ninth and thirtieth ranges of townships lying west of the first principal meridian in the system of Dominion land surveys, and northerly to the twelfth base line in said system of Dominion land surveys.

### BRITISH COLUMBIA.

By the convention signed at Paris in February, 1825, it was agreed that the line of demarcation between British Columbia and the Russian possessions should be drawn in the following manner:—

Commencing from the southernmost point of Prince of Wales Island, thence north along Portland Channel until the line strikes the 56th degree of north latitude; thence along the summit of the mountains situated parallel to the coast as far as the point of intersection of the 141st degree of west longitude (of the same meridian); and from the said point of intersection along the line of the 141st degree in its prolongation as far as the Frozen Ocean.

By 29 and 30 Vic., cap. 67, sec. 7, it was directed that British Columbia should comprise all such territories within the dominions of Her Majesty, as are bounded to the south by the territories of the United States, to the west by the Pacific Ocean and the frontier of the Russian territories in North America, to the north by the 60th parallel of north latitude, and to the east from the boundary of the United States northwards, by the Rocky Mountains and the 120th meridian of west longitude.

By 47th Vic., cap. 14, Statutes B. C. (1884), there was granted to the Dominion Government 3,500,000 acres of land in that portion of the Peace River district lying east of the Rocky Mountains, and adjoining the North-West Territory of Canada, to be located by the Dominion in one rectangular block.

## KEEWATIN.

By chap. 53, Revised Statutes of Canada, the boundaries of Keewatin are thus described :—

Beginning at the point of intersection of the northern boundary of Manitoba and the western shore of Lake Winnipeg; thence northerly, following the western shore of Lake Winnipeg and of the Nelson River to the point where the latter is intersected by the eighteenth correction line in the system of Dominion Lands surveys; thence west along the said correction line to a point where the same would be intersected by a line drawn due north from the north end of the portage leading from the head of Lake Winnipegosis into Cedar Lake, known as the "Cedar" or "Mossy" portage; thence due north to the northerly limits of Canada; thence easterly, following upon the said northerly limits of Canada to the northerly extremity of Hudson's Bay; thence southerly, following upon the westerly shore of the said Hudson's Bay to the point where it would be intersected by a line drawn due north from a point where the westerly boundary of the Province of Ontario intersects the international boundary line dividing Canada from the United States; thence due south to the said northerly boundary of the said Province of Manitoba; thence westerly, along the said northerly boundary, to the place of beginning.

This description was made before the western boundary of Ontario was fixed by the Imperial Act of 1889.

## PROVISIONAL DISTRICTS—NORTH-WEST TERRITORIES.

In view of the rapid development of the North-West Territories, beyond the boundaries of Manitoba, consequent upon the near completion of the Canadian Pacific Railway, it was deemed desirable that a portion of these vast territories should be divided into Provisional Districts for the convenience of settlers and for postal purposes. As the country is being rapidly settled, the necessity for public works is being felt, and several have been executed, or are in course of construction; a copy of the Order in Council creating these Provisional Districts is, therefore, appended in order that the locations of new works may be more readily determined.

G. F. B.

*CERTIFIED Copy of a Report of a Committee of the Honourable the Privy Council, approved by His Excellency the Governor General in Council, 8th May, 1882.*

On a Memorandum from the Minister of the Interior, hereunto annexed, submitting that for the convenience of settlers and for postal purposes, a portion of the North-West Territories should be divided into provisional districts and their boundaries defined :

The Committee concur in the recommendations contained in the said Memorandum, and submit the same for Your Excellency's approval.

JOHN J. McGEE.

DEPARTMENT OF THE INTERIOR,  
OTTAWA, 8th May, 1882.

The undersigned has the honour to report :—

That in his opinion, it is expedient for the convenience of settlers in the North-West Territories, and for postal purposes, that a portion of such Territories should be divided into Provisional Districts, and he recommends that four such districts be at once described and their boundaries settled.

He recommends that the four such districts be named *Assiniboia*, *Saskatchewan*, *Alberta*, and *Athabasca*.

He further recommends that the boundaries of such districts be as follows :

1st. *Assiniboia*.

The District of Assiniboia, about 95,000 square miles in extent, to be bounded on the south by the International boundary line, the 49th parallel; on the east by the western boundary of Manitoba; on the north by the 9th correction line of the Dominion Lands system of survey into townships, which is near to the 52nd parallel of latitude; on the west by the line dividing the 10th and 11th ranges of townships, numbered from the fourth initial meridian of the Dominion Lands system aforesaid.

2nd. *Saskatchewan*.

The District of Saskatchewan, about 114,000 square miles in extent, to be bounded on the south by the District of Assiniboia and by Manitoba; on the east by Lake Winnipeg and the Nelson River, flowing therefrom into Hudson's Bay; on the north by the 18th correction line of the Dominion Lands Survey system; and on the west by the line of that system dividing the 10th and 11th ranges of townships numbered from the fourth initial meridian.

3rd. *Alberta*.

The District of Alberta, about 100,000 square miles in extent, to be bounded on the south by the International boundary; on the east by the District of Assiniboia; on the west by the Province of British Columbia; and on the north by the 18th correction line before mentioned, which is near the 55th parallel of latitude.

4th. *Athabasca*.

The District of Athabasca, about 122,000 square miles in extent, to be bounded on the south by the District of Alberta; on the east by the line between the 10th and 11th ranges of the Dominion Lands townships, before mentioned, until, in proceeding northward, that line intersects the Athabasca River; then by that river and the Athabasca Lake and Slave River to the intersection of the last with the northern boundary of the district, which is to be the 32nd correction line of the Dominion Lands township system, and is very nearly on the 60th parallel of north latitude; westward by the Province of British Columbia.

A map of the proposed districts is hereunto annexed.

All of which is recommended.

(Signed) JOHN A. MACDONALD,  
*Minister of the Interior.*

## CESSION OF ALASKA, ETC., BY RUSSIA TO UNITED STATES.

CONVENTION FOR THE CESSION OF THE RUSSIAN POSSESSIONS IN NORTH AMERICA TO THE UNITED STATES. (CONCLUDED 30TH MARCH, 1867. PROCLAIMED 20TH JUNE, 1867.)

His Majesty the Emperor of all the Russians agrees to cede to the United States all the territory and dominion now possessed by His Majesty on the Continent of America and in the adjacent islands, the same being contained within the geographical limits herein set forth, to wit :

The eastern limit is the line of demarcation between the Russian and the British possessions in North America, as established by the convention between Russia and Great Britain, of February 28-16, 1825, and described in Articles III. and IV. of said convention in the following terms : " Commencing from the southernmost point of the island called Prince of Wales Island, which point lies in the parallel of  $54^{\circ} 40'$  north latitude, and between the 131st and 133rd degree of west longitude, the said line shall ascend to the north, along the channel called Portland Channel, as far as the point of the continent where it strikes the 56th degree of north latitude ; from this last-mentioned point, the line of demarcation shall follow the summit of the mountains situated parallel to the coast, as far as the point of intersection of the 141st degree of west longitude, and, finally, from the said point of intersection, the said meridian line of the 141st degree, in its prolongation as far as the Frozen Ocean.

IV. With reference to the line of demarcation laid down in the preceding article, it is understood :

" 1st. That the island called Prince of Wales Island shall belong wholly to Russia (now by this cession to the United States).

" 2nd. That whenever the summit of the mountains, which extend in a direction parallel to the coast from the 56th degree of north latitude to the point of intersection of the 141st degree of west longitude, shall prove to be at the distance of more than ten marine leagues from the ocean, the limit between the British possessions and the line of coast, which is to belong to Russia, as above mentioned (that is to say, the limit to the possessions ceded by this convention), shall be formed by a line parallel to the winding of the coast, and which shall never exceed the distance of ten marine leagues therefrom.

" The western limit, within which the territories and dominion conveyed are contained, passes through a point in Behring's Straits, on the parallel of  $65^{\circ} 30'$  north latitude, at its intersection by the meridian which passes midway between the islands of Krusenstern or Ignalook and the island of Ratmanoff or Noonarbook, and proceeds due north without limitation into the same Frozen Ocean. The same western limit, beginning at the same initial point, proceeds thence in a course nearly south-west through Behring's Straits and Behring's Sea, so as to pass midway between the north-west point of the island of St. Lawrence and the south-east point of Cape Choukotski to the meridian of  $172^{\circ}$  west longitude ; thence, from the intersection of that meridian, in a south-westerly direction, so as to pass midway between the island of Attou and the Copper Island of the Kormandorski count or group in the North Pacific Ocean, to the meridian of  $198^{\circ}$  west longitude, so as to include in the territory conveyed the whole of the Aleutian Islands east of that meridian."

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## PART IX.

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### CHRONOLOGICAL ENUMERATION

OF

### VOYAGES OF DISCOVERY IN THE NORTH, IN SEARCH OF A NORTHERN COMMUNICATION BETWEEN THE ATLANTIC AND PACIFIC OCEANS, INCLUDING SUCH OTHER VOYAGES AS HAVE BEEN CON- DUCIVE TO THE ADVANCEMENT OF DISCOVERY IN THE NORTH.

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Da. Danish  
Du. Dutch  
E. English

BEFORE  
CHRIST.  
340.  
A.D.  
861.

864.  
865 to 870  
874.

About 890

About 970  
982.

About 986

1001.

About 1000

1006 or 1007

About 1010

1170.

About 1380  
1384 to 1385  
1403 or 1404

1492.

1494 ?

1497.

1500.

1501.

1502.

1504.

1506.

1508.

1524.

.....  
1527.

1584.

CHRONOLOGICAL enumeration of Voyages undertaken by the different Nations of the World in search of a Northern communication between the Atlantic and Pacific Oceans; including such other voyages as have been conducive to the advancement of Discovery in the North.

## ABBREVIATIONS.

Da. Danish.  
Du. Dutch.  
E. English.

F. French.  
Ic. Icelandic.  
N. Norwegian.

P. Portuguese.  
R. Russian.  
Sp. Spanish.

Sw. Swedish.  
U.S. United States.  
V. Venetian.  
W. Welch.

BEFORE CHRIST.		
340. A.D.	F.	Iceland stated to have been discovered by Pytheas, the French navigator of Marseilles.
861.	N.	Iceland accidentally discovered by one Naddodd, a Scandinavian pirate, and called by him Schneeland or Snowland.
864.	Sw.	Iceland visited by a Swede of the name of Gardar Suaffarson, who wintered there.
865 to 870.	Sw.	This island was visited again by one Flocke, who named it Iceland.
874.	N.	Iceland visited by Ingolf and Lief (Hjorleifr), who formed a settlement there about four years afterwards.
About 890.	N.	Ohthere coasted along the west shore of Norway towards the north and east, and discovered the entrance of the White Sea.
About 970.	Ic.	Greenland discovered by one Gunbiorn.
982.	N.	This country was visited by Eric Rauda, who wintered there, and spent part of three years in exploring it. He named it Greenland.
About 986.	Ic.	A colonizing voyage undertaken by Eric Rauda to Greenland, with a fleet of 25 vessels, not above one-half of which reached their destination.
1001.	Ic.	Biorn, while on a voyage to Greenland, in search of his father, was driven out of his course by a storm, and accidentally discovered Winland.
About 1003.	Ic.	Lief, the son of one Eric Rauda, with Biorn as pilot, re-visited Winland, and wintered in the country in about the latitude of 50° N.
1006 or 1008.	Ic.	Thorwald, the brother of Lief, pursued discoveries in Winland, and in the adjacent country, during three years, and then was killed by a party of the natives.
About 1010.	Ic.	A voyage to Winland was undertaken by one Thorstein, but being driven upon the coast of Greenland, himself and many of his retinue died.
1170.	W.	Some part of America or the West Indies. said to be discovered by Madoc, son of Owen Guyneth, Prince of North Wales.
About 1384.	V.	Nicholas Zeno, in a voyage from Shetland or Ferroe, visited the coast of Greenland.
1384 to 1394.	V.	Antonio Zeno visited Iceland and Greenland, and, as some suppose, Winland also.
1463 or 1464.	P.	John Vaz Costa Cortereal, on a voyage towards the N.-W., is said to have discovered the Terra de Bacalhaos, afterwards named Newfoundland.
1492.	Sp.	Columbus, in a voyage undertaken for the discovery of a western passage to India, discovered the West Indies.
1494 ?	E.	John Cabot, and Sebastian his son, are said to have discovered Newfoundland, and called it Prima Vista?
1497.	E.	America discovered by Sebastian Cabot, when on a voyage in search of a North-West passage to India, and the coast examined from latitude 67½ to 38°.
1500.	P.	Gaspar Cortereal, with two ships, fitted out for re-search towards the North-West visited Greenland and Labrador, and discovered the River St. Lawrence, together with some islands contiguous to the American coast.
1501.	P.	Gaspar Cortereal undertook a second voyage in search of a N.-W. passage with two ships; he made the coast of Greenland, but being separated from his consort in a storm, was never heard of afterwards. His consort returned home safe.
1502.	P.	Michael Cortereal, with three ships, proceeded in search of his brother Gaspar Cortereal, when himself and ship's company likewise perished. The two other ships under his direction, however, got safe home.
1504.	F.	Newfoundland and Cape Breton visited by the Biscayners and Bretons, for the purpose of fishing.
1506.	F.	Jean Denis, with Camart, a native of Rouen, as pilot, sailed from Honfleur to Newfoundland, and is said to have been the first who laid down a chart of this country.
1508.	F.	The coast of Newfoundland examined by one Aubert, in a ship called the "Pensee."
1524.	F.	Juan Verazzani sailed to America, and proceeded along the coast about 700 leagues. This part, included between the parallels of perhaps 30° North and 56° North was named New France.
.....	Sp.	Estevan Gomer, towards the N.-W. No discovery appears to have been made.
1527.	E.	Two ships, one of which was called the "Dominus Vobiscum," were sent out for discoveries towards the North Pole. One of the ships was lost, and little or nothing accomplished.
1534.	F.	Jacques Cartier proceeded in search of a W. or N.-W. passage; sailed up the Gulf of St. Lawrence.

## CHRONOLOGICAL List of Voyages—Continued.

A.D.		
1535.	F.	Jacques Cartier, with three ships, performed a second voyage up the River St. Lawrence, which he examined as high as Montreal. He wintered in the St. Lawrence, where 25 of his crew died of scurvy.
1536.	E.	A voyage towards the N.-W. of the ships "Trinité" and "Minion," in which Cape Breton and Newfoundland were visited. The crews suffered much from famine.
About 1537.	Sp.	Francisco Ulloa, under the orders of Cortez, the conqueror of Mexico, appears to have made a voyage, with three ships, for discoveries towards the N. or W. or respecting the Strait of Anian.
1540.	F.	Jacques Cartier made a third voyage with five ships, towards the N.-W. This, however, was entirely a colonizing expedition. For after remaining two years in North America, he was joined, by appointment, by Roberval, Lieutenant-General and Viceroy of Canada, Newfoundland, Labrador, &c., who established a colony near Quebec.
1542.	Sp.	A journey from Mexico towards the north, undertaken by one Coronado, in search of the Strait of Anian; unsuccessful.
.....	Sp.	Alarcon sent from Mexico in search of the Strait of Anian by sea; unsuccessful.
1542 or 1544.	Sp.	Juan Rodriguez de Cabrillo, with an object similar to the two last, proceeded along the N.-W. coast of America as high as latitude 44° N.
1553.	E.	Sir Hugh Willoughby and Richard Chancellor, with three ships, went out for the discovery of foreign countries. Sir H. discovered Nova Zembla, and, on attempting to winter in Lapland, perished, together with the crews of two of the ships. Chancellor, in the other ship discovered the White Sea to near about the Dwina, and travelled overland from thence to Moscow.
1555.	E.	Richard Chancellor embarked on a trading voyage to the same quarter; he was drowned on his return in 1556.
.....	P.	Martin Chaque; a pretended voyage through North America.
1556.	E.	Stephen Burrough proceeded in a small vessel for discovery, &c., towards the N.-E. He visited Nova Zembla, and discovered the Island of Weigats.
.....	Sp.	Andrea Urdanietta; a pretended voyage.
1564.	Da.	Dithmar Blefkens sailed from Iceland towards the N.-E. A feeble attempt.
1576.	E.	Martin Frobisher, with three small vessels, proceeded in search of a N.-W. passage; discovered Frobisher's Strait or Lumley's Inlet, also the land Meta Incognita, and is said to have found gold ore.
1577.	E.	A second voyage was undertaken by Frobisher, in search of a N.-W. passage, and gold ore. Nothing discovered.
.....	E.	Edward Fenton was sent out to attempt the N.-W. passage reversed. The voyage was intercepted by enemies.
1578.	E.	Frobisher, with a fleet of 15 ships, proceeded towards the north-west for forming a settlement, and making discoveries. Hatton's Headland, and some other unimportant places, were discovered or visited; but the main objects of the expedition entirely failed. One ship was lost, and ten persons died on the voyage.
1580.	E.	Arthur Pet and Charles Jackman, with two ships, sailed in search of a N.-E. passage. One of the ships passed the Weigats Strait; the other, after wintering in Norway, was never heard of.
1582.	Sp.	An attempt was made to reverse the N.-W. passage by Francisco Gualle: He sailed from Japan 700 leagues E. N. E. to within 200 leagues of California, and then returned.
1583.	E.	An expedition for colonizing, trading, or making discoveries towards the N.-W., was undertaken by Sir Humphrey Gilbert, with five vessels. One vessel, with about 90 men, was lost.
1585.	E.	John Davis, with two small vessels, sailed in search of a N.-W. passage. He discovered or named the Land of Desolation, Mount Raleigh, Cumberland Island, Cumberland Strait, Dier's Cape, Cape Walsingham, Cape of God's Mercy, Exeter Sound, and Totness Road.
1586.	E.	A second voyage towards the N.-W. for trading and discovery, was undertaken by Davis. He saw more of Greenland and Labrador than any former navigator; but made no discovery of moment. One of his vessels, a pinnace of 10 tons, was lost, and all hands.
1587.	E.	Davis embarked on his third voyage for discovery towards the N.-W. On this occasion he discovered Davis' Strait, London Coast, &c., and named Lumley's Inlet, Warwick's Foreland, Cape Chidley, &c.
1588.	Sp.	A pretended voyage, by Maldonado, through a strait called Anian.
1592.	Sp.	Juan de Fuca performed a voyage to the northward along the W. coast of North America, and imagined he discovered a communication with the Atlantic in an easterly direction.
1594.	Du.	An expedition of four ships, under Cornelis Cornelison, William Barentz, &c., proceeded in search of a N.-E. passage. Some of the ships passed forty leagues beyond Weigat's Strait, and Barentz explored the western coast of Nova Zembla.
1595.	Du.	William Barentz sailed along with another expedition of seven ships, intended for trading and discoveries towards the N.-E., which altogether failed.

## CHRONOLOGICAL List of Voyages—Continued.

A.D.		
1596.	Du.	Barentz, on a third voyage for discovery towards the N. and E., with two ships, discovered Bear Island, now called Cherie Island, and Spitzbergen. Barentz, with one ship's company, wintered in Nova Zembla; most of his companions got home the next summer in two open boats, but himself and some others died.
.....	Sp.	Sebastiano Vizcaino sailed above 100 leagues to the northward, along the west coast of America. In one place he lost seventeen men.
1598.	F.	The Marquis de la Roche, in a colonizing voyage to the west coast of North America, made some researches.
1602.	Sp.	Vizcaino, in a second voyage to the west coast of America, sailed as high as 42° or 43° north in search of harbours.
.....	E.	George Weymouth, with two vessels, for the discovery of a North-West passage, is said to have sailed 100 leagues to the westward, in a sea nearly corresponding with Hudson's Strait.
1603.	E.	On a voyage towards the north, partly for trading, and partly for discovery, by Stephen Bennet, Bear Island, of Barentz, was visited, and named Cherie Island.
1605.	Da.	James Hall, an Englishman, as pilot, and Gotske Lindenau, a Dane, as Admiral of an expedition of three vessels, intended for the recovery of Lost Greenland and research, gave names to several places in Greenland, but discovered nothing.
1606.	Da.	Hall was employed in a second expedition under Lindenau, of five ships, for research, &c., about the coast of Greenland: nothing of consequence was discovered.
1606.	E.	In a voyage in search of a N.-W. passage, by John Knight, with one small vessel, nothing was discovered: Knight and three of his crew landed on the coast of Labrador, and were never afterwards seen.
1607.	Da.	Hall, in a third voyage, with two ships, in the same direction, only reached Cape Farewell, the crew having mutinied.
.....	E.	Henry Hudson, in a voyage towards the North Pole, with one small vessel only, discovered the E. coast of Greenland, as high as latitude 73°. Young's Cape, Mount of God's Mercy, and Hold with Hope, were positions discovered and named by him: the same voyage he visited Spitzbergen, and sailed to the latitude of about 81°.
1608.	E.	In his second voyage, with one vessel, in search of a N.-E. passage, Hudson landed on Nova Zembla.
1609.	Du.	Hudson, in his third voyage, in the Dutch service, sailed to the eastward of the North Cape, then westerly to Newfoundland, and along the American coast to the southward. The design of this curious navigation is not known.
1610.	E.	Hudson's fourth voyage, in search of a North-West passage, was important. With only one vessel he discovered (?) and passed Hudson's Strait, and discovered Hudson's Bay, where he wintered. The crew of the vessel afterwards mutinied, and forcing Hudson and eight other persons into a boat, left them to perish.
.....	E.	In a voyage for trade and discovery towards the north by Jonas Poole, Horn Sound, Deer Sound, and some other positions in Spitzbergen, were discovered and named. The whole of the country he named Greenland.
1611 or 1614.	Du.	A voyage by a ship belonging to Holland, is said to have been made about this time, in which a distance of 100 leagues to the eastward of Nova Zembla was accomplished (?).
1611.	Du.	The island of Jan Mayen is stated to have been discovered in this year, by the person whose name it bears: it is probable, however, that the discovery was not made until a year or two later.
.....	E.	A voyage towards the north, with two vessels, the principal object of which was to attempt the whale fishery, was undertaken by Jonas Poole; he sailed to latitude 80° N. and also the S.-W., from thence until he was 125 leagues to the westward of Cherie Island. Both ships were lost, but the crews were saved. Great part of the west coast of Spitzbergen was examined, and some bays discovered.
1611 to 1620	E.	Our whale-fishers, in their early voyages, had generally a discovery-vessel along with them. Their researches about the coast were productive of several discoveries, among which, besides bays, harbours and headlands, were Hope, Bear, Abbot's, Edge's, Scott's, Wester, Helsing, Sir Thomas Smith's, and various other islands.
1612.	E.	Sir Thomas Button, with two ships, sailed in search of a N.-W. passage by the way of Hudson's Bay. He discovered Nelson's River, Southampton Island, Mancel's Island, &c., and gave names to several remarkable headlands.
.....	E.	James Hall embarked towards the N. W. for the discovery of a passage or treasure, being his fourth voyage, and was killed by an Esquimaux. Cockin Sound discovered.
1614.	E.	Captain Gibbons, in attempting to find a N.-W. passage, got beset, and spent the season in a bay in Labrador; this place is said to have been named in derision "Gibbons his Hole."
.....	E.	Robert Fotherby, having along with him the celebrated Baffin, attempted discoveries in the north and about Spitzbergen, but nothing of consequence was accomplished.
1615.	E.	Robert Bylot, with Baffin as mate, attempted the finding of a N.-W. passage. Discovered Savage Islands, Mill Island, &c., about Hudson's Bay and Strait.

## CHRONOLOGICAL List of Voyages—Continued.

A.D.			A.D.
1616.	E.	William Baffin, appointed as pilot to a small vessel, of which Bylot was master, in searching for a N.-W. passage, discovered and circumnavigated the bay bearing his name. Among other discoveries in this bay that are enumerated, are Women's Islands, Horn Sound, Sir Dudley Digges' Cape, Wostenholm Sound, Whale Sound, Hakluyt's Island, Sir Thomas Smith's Sound, Carey's Islands, Alderman Jones' Sound, Sir James Lancaster's Sound, &c.	1712.
1617.	E.	Wiches Land, afterwards named by the Dutch Ryke Yae's Islands, discovered by one of the English whale fishers.	1715.
1619.	Da.	Two vessels, under the direction of Jens Munk, were sent out for the discovery of a N.-W. passage. They wintered in Hudson's Bay, where all the people, sixty-four in number, excepting Munk and two others, are stated to have died of the scurvy. These three accomplished their passage home in the smaller vessel.	1716.
1620*.	E.	In a voyage towards the N.-W., by William Hawkrbridge, considerable researches in Hudson's Bay appear to have been made, but nothing was discovered. The year in which this voyage was made, and the ships employed in it, are uncertain.	1719.
1631.	E.	A considerable exploration of Hudson's Bay was made by Luke Fox, in which names were given to various islands, promontories and bays. Among the islands he named Sir Thomas Rowe's Welcome, Brooke Cobham, Briggs his Mathematics, &c.; among headlands, Cape Maria, Cape Dorchester, King Charles his Promontorie, &c.	1721
.....	En.	A similar route to that taken by Fox, was pursued by Thomas James, who passed the winter in Hudson's Bay, yet discovered nothing.	1722
1636.	Da.	Greenland was visited, in search for treasure, by a vessel or vessels, fitted out by the Danish Greenland Company.	1723
.....	Ru.	The navigation of the Frozen Sea commenced by the Russians, who formed establishments on the banks of the Lena.	1724
1643.	Du.	A voyage in the ships "Castricum" and "Breskes," under the command of Martin Herizoom Van Vriez and H. C. Schaep, was undertaken from Japan towards the north. Between the Island of Ternate, from whence they sailed, and the latitude of 47°, beyond which they navigated, several islands, including perhaps the Kuriles, were discovered.	1728
1646.	R.	The rivers Jana, Indighirsa, Alasei and Kovima, having been discovered within ten years preceding this date, a voyage for trade and research from the Kovima towards the east, the first in this position, was undertaken by Isai Ignatiev, with a party of Promyschleni, under his direction: They traded with the Tchukchi.	1729
1647.	R.	A second trading voyage, with four kotchies, from the Kovima towards the east, was attempted under the direction of the Kossak, Semoen Deschnew or Deshneff: This altogether failed.	.....
1648.	R.	Seven kotchies, from the Kovima, &c., in one of which Semoen Deschnew again sailed, were dispatched towards the east. Six, if not all of these vessels, appear to have been wrecked; but one of them, commanded by Deschnew, previously accomplished the passage, it is supposed, round the great promontory of the Tchukchi* to the east side of Kamtschatka, and was lost near the River Olutura or Aliutori.	1730 or 1731
1652.	Da.	An expedition of two ships, under Captain Danell, was sent out for discovery of the east side of Greenland. The east coast, at intervals, was seen from latitude 65°.30' to Cape Farewell, but no landing was effected.	1734 and 1735
1653.	Da.	A second examination by Danell was undertaken. The east coast was again seen, but only at a distance, from Herjolfsness, latitude 64°, to Cape Farewell.	1735 36
.....	Da.	Three ships, sent out for the discovery of a N.-E. passage, passed the Weigatz, but discovered nothing.	.....
1654.	Du.	Gale Hamkens Land, on the east coast of Greenland, intimated by the Dutch charts, as having been discovered by a Greenland trader of the same name.	1737
1655.	Du.	The Land of Edam, east side of Greenland, latitude 78°, marked in the Dutch charts as having been discovered.	1738
1660.	Po.	David Melguer, said to have reversed the N.-E. passage. A pretended voyage.	.....
1668.	E.	A voyage into Hudson's Bay, and for discovery towards the N.-W., was performed by Captain Zachariah Gillam, accompanied by M. de Grosseleiz, a Frenchman, by whom the practicability of making an important settlement in this quarter had been suggested. Gillam wintered in Hudson's Bay, and built a small stone fort. The apparent advantages to be derived from settlements, founded on the examinations of this voyage, &c., appear to have led to the formation of the Hudson's Bay Company, which was chartered in the year 1669.	1739 and 1740
1676.	E.	John Wood and William Flavies, with two ships, proceeded in search of a N.-E. passage. Wood's ship was wrecked on the west coast of Nova Zembla, and no discovery whatever made.	1741
1696.	R.	Kamtschatka, discovered by land, by a troop of sixteen Kossaks.	.....
1707.	Du.	A country to the N.-E. of Spitzbergen, named Gilles' Land, intimated by the Dutch charts as having been discovered.	.....

\* Captain Burney is of opinion, that this voyage might have been accomplished without doubling the promontory, by taking the vessel in pieces, a practice not uncommon with the Russians, and carrying it over a narrow neck of land between the Kovima and the Anadir.

## CHRONOLOGICAL List of Voyages—Continued.

A.D.		
1712.	R.	Mercuri Wagin, a Cossak, with a party of eleven men, proceeded from the river Jana across a surface of ice, in sledges drawn by dogs, towards the north, and is said to have discovered and landed on a large island. Having suffered great hardships on their return, Wagin, his son, and another Cossak, to whom their difficulties were attributed, were murdered by the rest of the party.
1715.	R.	A remarkable journey from the Jana towards the north, was accomplished by Alexei Markoff. He travelled by means of sledges drawn by dogs, across a frozen sea, as far north, it is supposed, as the 78th degree of latitude, without finding land, and accomplished a journey of about 800 miles in twenty-four days.
1716.	R.	The first voyage from Ochotzk to Kamtchatka was performed by Henry Busch, a native of Hoorn, in North Holland.
1719.	L.	Two vessels, under the direction of James Knight, and commanded by George Barlow and David Vaughan, were sent out by the Hudson's Bay Company, to search for "the Strait of Anian, in order to discover gold, &c., to the northward." Neither of these ships ever returned: Knight and his companions are supposed to have perished at Marble Island in Hudson's Bay.
1721	Da.	The Greenland Company of Bergen established a colony on the west coast of Greenland, of which Hans Egede, the enterprising and zealous missionary, was a member.
1722	E.	A voyage from Churchill River, Hudson's Bay, was undertaken by John Scroggs, in search of Knight. He examined several parts of the bay without success. He does not appear, indeed, to have paid much attention to the original object of the voyage.
1723	Da.	A ship sent out by the Bergen Greenland Company, for reconnoitring Davis' Strait, was lost, and all hands, it is supposed perished.
1724	Da.	Two ships fitted out by the Bergen Company for discovery, one for exploring the west side of Davis' Strait, in the 67th parallel, and the other for examining the east coast of Greenland, effected nothing.
.....	R.	About this time several voyages and journeys were made by the Russians, on and about the Frozen Sea, in search of northern lands, in which several islands were discovered.
1728	R.	Captain Vitus Behring was employed in a voyage from Kamtchatka, for discoveries towards the north, and for ascertaining whether Asia and America were continuous. He sailed as high as 67° 18' N. latitude, having passed the place now called Behring's Strait.
1729	R.	Behring sailed on his second voyage from Kamtchatka, in search of land towards the east. He did not, however, leave the land above 200 versts, and discovered nothing.
.....	Da.	Lieutenant Richard made an unsuccessful attempt to reach the east coast of Greenland, in the parallel of Iceland.
1730 or 1731	R.	A vessel was dispatched under the orders of the Surveyor Gwosdew and Tryphon Krupischew, a Kossak officer, for the purpose of inviting the Tchuktchi to pay tribute; in this voyage the West Coast of America, in the 66th parallel, was discovered.
1734 and 1735	R.	The navigation from Archangel to the West Coast of the peninsula separating the Gulfs of Kama and Obe, was accomplished by Lieutenant Morovieff.
1735	R.	Lieutenant Lassenius sailed from the Lena towards the east, and wintered in the River Charaulack, where 46 out of 52 persons, composing his crew, died of the scurvy.
1735 36	R.	Lieutenant Frontschitsch sailed from the Lena westward, and after wintering in the Olenec, proceeded to the height of 77° 25', and westward to the Bay of Taimourska.
.....	R.	A voyage from the Lena somewhat to the eastward of the Charaulack, was performed by Dmitri Laptiew.
1737	E.	Two ships equipped by the Hudson's Bay Company, for discoveries in Hudson's Bay and towards the N.-W., appear to have accomplished little or nothing.
1738	R.	The navigation from Archangel towards the east, by the Russians, commenced in 1734, was continued by Lieutenants Mlyagin and Skuratow, and accomplished as far as the Obe.
.....	R.	The voyage from the Obe to the Eniesi was accomplished by Lieutenants Owzen and Koschlew.
1739 and 1740	R.	Lieutenant Laptieff, on his second voyage in the Frozen Sea, sailed from the Lena, wintered in the Indighirsa, and proceeded the next spring to the Kovima, from whence, according to some authors, he crossed the isthmus of the Tchuktchi to the river Anadir, communicating with the sea of Kamtchatka.*
1741	R.	An expedition of two vessels, under Commodore Behring and Captain Tschirikow, was dispatched from Ochotzk in 1740, which, after wintering in Kamtchatka, proceeded towards America, for the purpose of making discoveries about its shores. The ships being separated on the passage, Behring discovered the Continent in latitude 58° 28' and Tschirikow in 55° 39'. The former, after discovering several islands, lost his ship on one of the Aleutians, called Behring's Island, where he died. The latter returned, having lost two boats and their crews on the American coast.

\* The combined result of these Russian navigations in the Frozen Sea, is briefly traced in Chap. 1 and 2 of Vol. I. of Scoresby's "Arctic Regions," 1820.

## CHRONOLOGICAL List of Voyages—Continued.

A.D.		
1741 and 1742	E.	Some part of the Welcome, in Hudson's Bay, examined by Christopher Middleton and William Moor, with two vessels, after having wintered in Churchill River. The object of the voyage was the discovery of a N.-W. passage.
1743	—	A reward of £20,000 offered by Parliament, for the discovery of a N.-W. passage, by the way of Hudson's Bay. (18th Geo. II. c. 17.)
1746	E.	Two ships, under the command of William Moor and Francis Smith, sent out in search of a N.-W. passage, by the way of Hudson's Bay. The first summer they examined some part of the Welcome, and after wintering in Haye's River, made a good exploration of Wager River, previously supposed to be a strait.
1753	Am.	Captain Charles Swaine, in the schooner "Argo," sailed from Philadelphia for the discovery of a N.-W. passage; but being unable to penetrate through Hudson's Strait, he examined a large extent of the Labrador Coast, from 56°, it is said, to latitude 65°.
1760 to 1763	R.	A most persevering but unsuccessful attempt was made by a Russian merchant of the name of Shalauoff to sail from the Lena round the great Tchutkhi promontory. He first wintered in the Jana, and then twice in the Kovima. He discovered some islands and a bay, being the farthest spot he reached, which has been named Tschoon Bay.
1761.	E.	A sloop, under the command of Captain Christopher, was sent by the Hudson's Bay Company to explore Chesterfield Inlet in Hudson's Bay, with the expectation that it might be the opening of a N.-W. passage. Christopher is said to have penetrated above 150 miles, and then returned.
1762.	E.	Christopher was again sent out to complete the examination of Chesterfield Inlet, when he traced it by a river into a lake, 24 miles long, and 6 or 7 broad; and across this to the westward into another river, until his further progress, even in boats, was interrupted by falls.
1764.	R.	The indefatigable Shalauoff made a final attempt to pass from the Lena round the Tchutkhi promontory, in which he is supposed to have perished, as neither himself nor any of his companions ever returned.
1769.	Da.	Baron Von Uhlefeldt through Hudson's Bay into the Pacific. A pretended voyage.
1669 to 1772.	E.	A journey by Samuel Hearne, after two unsuccessful attempts, accomplished from Prince of Wales Fort, Hudson's Bay, to the Copper-Mine River, supposed to fall into the Northern Ocean.
1772.	A.	A second voyage for the discovery of a N.-W. passage, seems to have been attempted by the Americans; Captain Wilder, in the brig "Diligence," having sailed to latitude 69° 11' with such a design. This vessel was fitted out by means of the subscriptions of some gentlemen of Virginia.
1773.	E.	In a voyage towards the North Pole, with two vessels under the charge of Constantine John Phipps and Skeffington Lutwidge, the latitude of 80° 48' was reached, and some interesting surveys and observations made, but no discoveries.
1775.	Sp.	A voyage for discovery along the west side of North America, made, by order of the Viceroy of Mexico, by Bruno Hegeta and others; they reached the latitude of 57° 18' N.
1776.		The reward of £20,000 for the discovery of a N.-W. passage extended, not by the way of Hudson's Bay and in merchant ships only, but to any ships, even those of His Majesty, which, by a former Act, were excluded, and in any northern direction between the Atlantic and Pacific Oceans: Also, an award of £5,000 to any ship that should approach within one degree of the North Pole. (16th Geo. III. cap. 6.)
1776.	E.	Richard Pickersgill, in the brig "Lion," was sent to Baffin's Bay for the protection of the whale-fishers, and for the examination of the coasts. He only reached the latitude of 68° 10', and then returned without having accomplished almost anything.
1777	E.	The same vessel was again equipped, under the command of Lieutenant Walter Young, who was ordered to examine Baffin's Bay, and attempt to find a N.-W. passage, with a view, it seems, of meeting Captain Cook, who was expected about the same time to be trying to reverse the same track. But Young, having reached to the height of 72° 42', though so early as the month of June, tacked, and soon after returned home.
1776	E.	The adventurous navigator, James Cook, with two ships under his direction, being appointed to make discoveries towards the reversing of a N.-W. passage, passed Behring's Strait on his third voyage, in the summer of 1778, and discovered or named Cape Prince of Wales, Point Mulgrave, Icy Cape, Cape Lisburne, Cape North, &c., and advanced to the northward as high as latitude 70° 44' N., which limit being unable to pass, he returned to the southward to spend the winter. In one of the Sandwich Islands, Owhyhee, this celebrated character lost his life.
1779	E.	After the death of Captain Cook, a second examination of the icy sea, to the northward of Behring's Strait, was undertaken by Charles Clerke, in which the same two ships reached the latitude of 70° 33', beyond which they were unable to advance on account of ice.
1786 & 1787	Da.	An expedition under Captain Lowenorn and Lieutenant Egede, was sent out from Copenhagen for the recovery of lost Greenland. Several attempts were made to reach the coast about the parallel of 65°, without being able to approach nearer than about 50 miles on account of ice; Lowenorn returned to Denmark in July, and Egede to

A.D.

1787 to 1791

1789.

1789.

1790 to 1792

1791 to 1792

1805 to 1806

1815 to 1816

1818.

1818

1818 &amp; 1819

1819

1819-20

## CHRONOLOGICAL List of Voyages—Continued.

A.D.		
1787 to 1791	R.	Iceland to refit. The latter made another attempt in the month of August, when he reached within 10 miles of the land, and then proceeded to Iceland, where he wintered. The next year, Egede, with two small vessels, one commanded by Lieut. Rothé, made other trials to approach the Greenland coast, but with less success than before, never being able to reach the land within 30 miles.
1789.	E.	Joseph Billings, an Englishman, was employed in the service of Russia for researches about Behring's Strait and the Tchutkchi Promontory. In 1787, he made a short voyage from the Kovima into the Icy Sea; in 1790, he sailed from Kamtschatka to the Aleutian Islands; and from thence, the same year, he sailed to the Bay of St. Lawrence, on the south side of Cape East, Behring's Strait, where he landed, and traced the coasts to the northward as far as Klutshenie Bay, the eastern side of which is formed by Cape North. From this place he crossed the country towards the west, and arrived at the Kovima in 1791.
1789.	Sp.	Alexander Mackenzie accomplished a river navigation from Fort Chipewyan, on the south side of the Lake of the Hills, as far as latitude 69° 14', where he was evidently on the borders of the Hyperborean Sea, or near the mouth of a river communicating with it. The river he descended is now named Mackenzie's River.
1790 to 1792.	E.	Two corvettes, under the orders of Malaspina, were sent to the N.-W. of America, to search for a navigable communication from the Pacific to the Atlantic, between the parallels of 53° and 60° N.
1791 to 1795.	E.	Charles Duncan sailed in one of the Hudson's Bay ships, with the view of being furnished with a small vessel on his arrival out, for making investigations towards a N.-W. passage; but, being disappointed both in the vessel and crew provided for him, he returned to England without attempting anything. The following year he proceeded on the adventure towards the N.-W. in a small vessel fitted out of London; wintered in Hudson's Bay, then made some slight examination of Chesterfield's Inlet, and again returned to a port in the Bay to winter. After these failures or disappointments, nothing else by him was attempted.
1805 to 1809.	R.	Two vessels, under the command of George Vancouver, were sent out to the west coast of North America, partly for receiving back some territories which had been seized by the Spaniards, and partly for discovery in regard of a navigable communication from the Pacific to the Atlantic, between the parallels of 30° and 60° N. The whole of the west coast was accordingly traced from latitude 30° to the head of Cook's Inlet, in about 61° 18'. In this laborious investigation, Vancouver sailed almost 1,000 miles in channels, in some places very contracted, between ranges of islands and the main. The non-existence of a passage through the continent, within the limits prescribed, was well established.
1815 to 1818.	R.	Several islands to the northward of that part of Russia, included between the Jana and the Kovima, were discovered in different brief northern expeditions, among which was an extensive tract of country, now called New Siberia.
1818.	E.	Lieutenant Kotzebue, in a small vessel called the "Rurick," was employed for making discoveries to the northward of Behring's Strait on the side of America. He passed Behring's Strait in 1816, and after some little time spent in research, returned to the southward to winter. The next summer, Kotzebue proceeded again towards the north; but having met with a personal accident, was obliged to bear up homeward, after reaching the mouth of Behring's Strait.
1818.	E.	John Ross and William Edward Parry, proceeded with two well equipped ships, for the discovery of a N.-W. passage. They circumnavigated Baffin's Bay, proved the non-existence of Cumberland Island, discovered some part of the west coast that was not seen by Baffin, and gave names to numerous positions in the course of their navigation.
1818.	E.	David Buchan and John Franklin, with two ships, undertook a voyage for discovery towards the North Pole. One of the vessels received damage in the best part of the season, and occasioned, it is said, the return of the expedition before that research had been made which was intended.
1818 & 1819.	E.	Rewards to navigators, for advancing to latitude 83° N. and to longitude 110° W., within the Arctic circle, with a progressive increase of premiums for sailing still nearer to the North Pole, and making further advances in the discovery of a N.W. passage, permitted by Act of Parliament, and fixed by an Order in Council. Act 56th Geo. III., c. 20, and <i>London Gazette</i> , 23rd March, 1819.
1819.	E.	William Edward Parry was again dispatched for discoveries towards the N.W. with two vessels under his direction. The issue not yet known.
1819-20-21-22	E.	Sir John Franklin's first expedition with Dr. Richardson, from Gravesend, England, 23rd May, 1819, to York Factory, Hudson's Bay, which he left 30th August, 1819; thence overland by chain of rivers and lakes, to Athabasca Lake, Great Slave Lake, Yellow Knife and Copper-Mine Rivers, and thence Eastward on the Polar Sea to Cape Turnagain, latitude 68° 18' 50" N., longitude 109° 25' W., which was reached 18th August, 1821.
		During the return journey, 22nd August to 2nd November, 1821, from Polar Sea to Fort Enterprise, latitude 64° N., longitude 112° 30' W., the party suffered greatly from cold and starvation; 1 man was lost, 4 died, and 5 were murdered on the way, by one of the guides.

## CHRONOLOGICAL List of Voyages—Continued.

A.D.		
1825-26-27.	E.	Franklin, who was accompanied by Dr. Richardson and Hepburn, returned to York Factory 14th June, 1822, and thence to England. Franklin's second expedition with Dr. Richardson, from New York to Fort William; thence <i>via</i> Lake Winnipeg, Cumberland House and chain of lakes to the River Mackenzie; thence down this river to the Polar Sea and along its east and west coasts. They reached Garry Island, at mouth of the Mackenzie towards latitude 69° longitude 130° — in August, 1825, returned to Fort Franklin, Great Bear Lake and spent the winter there; during the following year, they again descended, 24th June to 7th July, to the mouth of the Mackenzie. Here they separated; Franklin proceeded, on the Polar Sea, with 2 boats and 8 men each, to Ice Reef, latitude 70° 26' and longitude 148° 52', Westward, where he arrived 17th August. Dr Richardson with 2 boats and 6 men each, proceeded eastward to the mouth of the Copper-Mine River, in latitude 67° 47' 50" and longitude 115° 49' 33"; he thence ascended this river a distance of about 60 miles and went overland to Fort Confidence at N.E. or upper end of Great Bear Lake; he continued thence by canoe and by boat down to Fort Franklin at the lower or east end of the lake, where he arrived on the 1st September, having coasted 318 miles along the shore, the distance in a direct line being about 175 statute miles. Franklin returned by the Mackenzie and reached the same Fort on the 21st of the same month. They returned to England in 1827.
1845-46-47.	E.	Franklin's third, last and fatal expedition, <i>via</i> Davis Strait, Baffin Sea, Lancaster Sound, Beechey Island, Wellington Channel up to head of Grinnell Land, latitude 77° N., and about 97° of longitude W.; thence down channel along east side of Bathurst Island and west side of Cornwallis Island; thence down Peel Sound to Boothia Felix and King William's Island, in search of a passage to Behring Sea and the Pacific Ocean, with two ships the "Erebus" and "Terror." From a record found in a cairn near the head of King William's Island, in May, 1850, by Lieut. W. R. Hobson, under McClintock, it appears that the latter died 11th June, 1847, at which time the total loss by deaths had been 9 officers and 15 men, out of a party of 105 who had landed there 22nd April, 1847, their vessels having been beset by ice since 12th September, 1846. This document was dated 25th April, 1848, and signed by Captain F. R. M. Crozier of the "Terror," and Captain James Fitzjames of the "Erebus." They added a note stating that they would start next day for Back's Fish River. For details see Captain McClintock's narrative respecting Franklin's discoveries and his own, published in London, 1859. For further details respecting Franklin's three expeditions, see Part IV.
31st Aug., 1875.	E.	Capt. George Nares with the "Alert" and "Discovery" reached latitude 82° 25' N., longitude 61° 30' W. The "Alert" was moored near Cape Sheridan, Floeberg Beach, the highest latitude ever attained by any vessel.
27th Sept., 1875.	E.	Lieut. Aldrich of Nares' expedition, made a sledge journey on the Polar Sea to latitude 83° 7', longitude 63° 5'; he saw Cape Columbia, longitude 87° 30' W.
12th May, 1876.	E.	Commander Markham and Lieut. Parr of Nares' expedition, planted the British Flag on the Polar Sea, latitude 83° 20' 26" N., longitude 63° 5' W.
18th May, 1876.	E.	Lieut. Aldrich, sledge journey to Cape Alert near Cape Alfred Ernest, Grinnell Land, westward along the Polar Sea, latitude 82° 16', longitude 85° 33'.
21st May, 1876.	E.	Lieut. L. A. Beaumont, Nares' expedition, sledge journey to Sherard Osborn Fiord, latitude 82° 20' N., longitude 50° 54' W.
3th June, 1881.	U.S.	Lieut. Com. George W. De Long's expedition of 33 persons reached latitude 77° 15' N., longitude 155° E., on the Polar Sea, westward of Bennett Island and northward of Siberia. His vessel the "Jeannette" was crushed by ice. De Long and his party travelled across the floating and creviced ice with sledges and boats to the mouth of the River Lena, Siberia, which 23 of the party reached 12th and 17th Sept., 1881, the others having been lost at sea; 21 of the party died from exhaustion and starvation. Only 12 survived; the remains of the deceased were sent to the United States.
13th May, 1882.		Lieut. Adolphus W. Greely's expedition. His second Lieut. J. B. Lockwood and Sergeant D. L. Brainard reached the furthest point ever reached by man, at Lockwood Island, latitude 83° 24' N., longitude 40° 46' W., by traversing the ice of the Polar Sea with a sledge. Greely sailed from St. John, Newfoundland, 7th July, 1881, with 22 persons; he engaged 2 Eskimos on the way, which made a party of 25 in all. He reached Discovery Harbour in Franklin's Bay, 11th August, and there established Fort Conger, as his headquarters. Greely wintered there in 1881-82; on 9th August, 1883, he abandoned Fort Conger where he left all his books and proceeded southward to Baird Inlet which he reached 29th September, after being adrift for thirty days in the midst of the ice floes of Smith's Sound. His permanent camp was established at Cape Sabine 21st October, 1883.

A.D.

NOTE—  
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# CHRONOLOGICAL List of Voyages—Concluded.

A.D.	U.S.	He was rescued there, 22nd June, 1884, by the "Thetis" and "Bear."
		Out of the entire party of 25, there remained 7 alive; 16 had died of starvation, 1 was drowned whilst sealing to procure food for his companions and 1 had been shot by Greely's orders for robbing the provisions on which the others relied for their sustenance. Out of the 18 deceased, 6 had been partly eaten, 5 had been swept away from their graves into the Sea, and 1 was drowned. Twelve bodies of the dead were recovered and brought on board of the two vessels. One Eskimo was buried at Disco.

NOTE.—The above record of "Voyages of Discovery in the North" from 861 A.D. to 1819 A.D. has been taken from pages 54 to 71 inclusive, of the Appendix to the 1st Volume of the Arctic Regions by W. Scoresby, Jun., F. R. S. E., printed in Edinburgh, 1820.

The remainder subsequent to 1819 has been extracted from the narratives of the respective voyages.

## EXPEDITIONS for the Relief of Sir John Franklin.

### 1. FROM THE WEST THROUGH BEHRING STRAIT.

Year.	Vessels.	Commanders.
1848-52.....	Plover.....	Commander Moore and Captain Maguire.
1848-49.....	Herald.....	Captain Kellett.
1850-55.....	Enterprise.....	do Collinson.
	Investigator.....	Commander McClure.

### 2. FROM THE EAST THROUGH BAFFIN SEA.

1848-49.....	Enterprise.....	Sir J. C. Ross.
	Investigator.....	Captain Bird.
1850-51.....	Lady Franklin.....	do Pennv.
	Sophia.....	do Stewart.
	Resolute.....	do Austin.
	Assistance.....	do Ommaney.
	Pioneer.....	Lieutenant Osborn.
	Intrepid.....	do Cator.
	Advance.....	do d'Haven, U.S.N.
	Rescue.....	Master Griffin, U.S.N.
1852-54.....	Assistance.....	Sir E. Belcher.
	Resolute.....	Capt. Kellett.
	Pioneer.....	Lieutenant Osborn.
	Intrepid.....	do McClintock.
	North Star.....	Captain Bullen.
1853.....	Phoenix.....	Commander Inglefield.
	Breadalbane.....	Lieutenant Fawcner.
1853-58.....	Advance.....	Dr. Kane, U.S.N.
1854.....	Phoenix.....	Commander Inglefield.
	Talbot.....	do Jenkins.
1855.....	Release.....	Lieutenant Hartestein, U.S.N.
	Arctic.....	do Simmes, U.S.N.
1857-59.....	Fox.....	Captain McClintock.

## LIEUTENANT COMMANDER DeLONG'S EXPEDITION.

The United States steamer "Jeannette," Lieut. Com. George W. DeLong, sailed from San Francisco 8th June, 1879; afterwards from St. Michael's, Alaska, by the Strait of Behring and reached Lat. 77° 15' north by Long. 155 east, where she was crushed in by ice, 13th June, 1881. DeLong and his party succeeded to land at the mouth of the Delta of the Lena, 12th and 17th September, 1881. G. W. Melville and 11 others were the only survivors out of an entire party of 33, of whom 10 perished at sea before reaching the Lena. The remains of De Long and 10 of his companions were found 23rd March, 1882, and interred in the United States, 22d February, 1884.

## GREELY'S EXPEDITION.

July 7, 1881.—Left St. John's, Nfld., with a party of 23 men; afterwards shipped two Eskimo's at Upernivik.

July 16, 1881.—He reached Godhavn.

July 23, 1881.—He reached Upernivik.

August 12, 1881.—He reached Discovery Bay.

The steamer "Proteus" after having landed Greely and his party at Discovery Bay, left, 25th August, to return to St. John's, Nfld.

Greely wintered in 1881-82 at Fort Conger.

August 9, 1883.—Greely abandoned Discovery Bay and arrived at Cape Sabine, 6th October, 1883.

He wintered in 1883 at Cape Sabine.

The extreme point reached by Lieut. A. W. Greely's sledge expedition was  $83^{\circ} 24'$  north, which is the highest latitude attained by man, and was named "Lockwood Island," in honor of Lieut. J. B. Lockwood, the officer in charge of the party who reached there on 13th May, 1882, at  $40^{\circ} 46'$  west longitude, with Sergt. Brainard and the Eskimo, Christiansen.

## EXPEDITION FOR THE RESCUE OF GREELY, 1882-84.

1. 1882.—Steamer "Neptune" left St. John 8th July, 1882, and reached Cape Hawks, 10th August, but was obliged to return to St. John's, Nfld.

2. 1883.—Steamer "Proteus," which had been chartered for Greely's scientific expedition in 1881, was chosen by the Relief Party of 1883. She sank near Cape Albert, 23rd July, the Relief Party succeeding to land at Cape Sabine which was abandoned to retreat on Upernivik, where they found the steamship "Yantic" stationed. The "Yantic" left immediately with the Relief Party and reached St. John's, 13th September, 1883.

3. 1884.—Steamers "Thetis" and "Bear" sailed from St. John's, 12th May, for Cape Sabine. They left Cape Sabine, 23rd June, 1884, with Greely and six other survivors and the remains of twelve of the explorers, and arrived at St. John's, 16th July, 1884. One Eskimo was buried on the way at Disco.

## TEMPERATURE FAHRENHEIT

OBSERVED 1882, DURING GREELY'S EXPEDITION.

April 27, 1882.—At Cape Bryant, Lincoln Sea.....	—	14·0
May 5, 1882.—At Cape Britannia ".....	+	2·0
May 13, 1882.—At Lockwood Island ".....	+	14·0
June 29, 1882.—Highest in the shade, near Fort Conger	+	74
June, July, August, 1882.—Mean at do ...	+	26·3
July, 1882.—Mean at do ...	+	30·0
Feb. 3, 1882.—Lowest at do ...	—	62·2
Feb. 3, 1882.—Mean at do ...	—	52·9
Feb. 3, 1882.—Highest at do ...	—	44·1

Game found by Greely, August 12, 1881, to July 1883, north of latitude  $81^{\circ}$  N. :—

Ice-bears, wolves, foxes, musk-oxen, ermines, hares, walrus, seals, salmon, lemmings, ducks, geese, gulls, ravens, owls, ptarmigans, skuars, sand-pipers, sanderlings, etc.

NOTE.—Greely states that alcohol thermometers cannot always be relied upon for temperatures below  $60^{\circ}$  Fahrenheit.

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## ADDENDA

TO

CANADA FROM THE ATLANTIC TO THE PACIFIC AND ARCTIC OCEANS,

ARCTIC EXPEDITIONS

AND

VOYAGES OF DISCOVERY.

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NAUTICAL AND STATUTE MILES

CORRESPONDING TO

A DEGREE OF LONGITUDE AT THE VARIOUS LATITUDES

AND THE

DEFINITION THEREOF.

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The following table shows how many Nautical Miles answer to a degree of Longitude at every Degree of Latitude.

Latitude.	Knots.	Latitude.	Knots.	Latitude.	Knots.	Latitude.	Knots.	Latitude.	Knots.	Latitude.	Knots.	Latitude.	Knots.	Latitude.	Knots.
1	59.99	11	58.90	21	56.01	31	51.43	41	45.28	51	37.76	61	29.09	71	19.53
2	59.96	12	58.69	22	55.63	32	50.88	42	45.59	52	36.94	62	28.17	72	18.54
3	59.92	13	58.46	23	55.23	33	50.32	43	43.88	53	36.11	63	27.24	73	17.54
4	59.85	14	58.22	24	54.81	34	49.74	44	43.16	54	35.27	64	26.30	74	16.54
5	59.77	15	57.96	25	54.38	35	49.15	45	42.43	55	34.41	65	25.36	75	15.53
6	59.67	16	57.68	26	53.93	36	48.54	46	41.68	56	33.55	66	24.40	76	14.52
7	59.55	17	57.38	27	53.46	37	47.92	47	40.92	57	32.68	67	23.44	77	13.50
8	59.42	18	57.06	28	52.98	38	47.28	48	40.15	58	31.80	68	22.48	78	12.47
9	59.26	19	56.73	29	52.48	39	46.63	49	39.36	59	30.90	69	21.50	79	11.45
10	59.09	20	56.38	30	51.96	40	45.96	50	38.57	60	30.00	70	20.52	80	10.42
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Lengths of a degree of longitude in different latitudes, and at the level of the sea.

These lengths are in common land or statute miles of 5,280 feet. Since the figure of the earth has never been *precisely* ascertained, these are but close approximations.

Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.
0	69.16	14	67.12	28	61.11	42	51.47	56	38.76	70	23.72
2	69.12	16	66.50	30	59.94	44	49.83	58	36.74	72	21.43
4	68.99	18	65.80	32	58.70	46	48.12	60	34.67	74	19.12
6	68.78	20	65.02	34	57.39	48	46.36	62	32.55	76	16.78
8	68.49	22	64.15	36	56.01	50	44.54	64	30.40	78	14.42
10	68.12	24	63.21	38	54.56	52	42.67	66	28.21	80	12.05
12	67.66	26	62.20	40	53.05	54	40.74	68	25.98	82	9.66

#### DEFINITION OF GEOGRAPHICAL OR NAUTICAL AND STATUTE MILES.

A nautical mile, or a sea mile, is the length of one minute of longitude of the earth at the equator, at the level of the sea, or the  $\frac{1}{21600}$  part of the earth's equatorial circumference. By the United States standard, and as used by the Coast Survey, its length is 1.152664 common statute or land miles; 1855.11 metres; 2028.69 yards; or 6086.07 feet; consequently, one degree of longitude at the equator=69.160 land miles; and a land mile=0.86755 of a nautical mile. By British standard the sea mile is about 4 inches longer than by United States. Sometimes one minute of a mean *latitude* is taken as a nautical mile. A minute of latitude at the equator is about 6,046 feet; and at the Poles about 6,107; the mean of which is 6,076½ feet.

to a degree of

Latitude.	Knots.	Latitude.	Knots.
71	19.53	81	9.39
72	18.54	82	8.35
73	17.54	83	7.31
74	16.54	84	6.27
75	15.53	85	5.23
76	14.52	86	4.19
77	13.50	87	3.14
78	12.47	88	2.09
79	11.45	89	1.05
80	10.42	90	0.00

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Degree of Latitude.	Miles.
76	70
74	72
67	74
55	76
40	78
21	80
98	82

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## TIME OF HIGH WATER AT FULL AND CHANGE

AND

## RISE OF NEAP AND SPRING TIDES

AT VARIOUS PLACES IN

## CANADA.

PROVINCE OF NOVA SCOTIA.  
ATLANTIC OCEAN AND GULF OF ST. LAWRENCE.

Port or Harbour.	County.	High Water, Full and Change.	RISE OF TIDES.		Range of Tides.	Authority.
			Neaps.	Springs.		
		H. M.	Ft. In.	Ft. In.		
Advocate Bay .....	Cumberland .....	11 55	53 0	39 0	Highest spring tide, 46 ft. above ordinary low water springs.	Pub. Works Dept., G. F. Baillarge, 1871.
Ankerst. ....	do	11 55	38 0	45 3	.....	Admiralty charts, 1860.
Antigonish Harbour. ....	Antigonish .....	9 0	2 0	4 0	.....	Capt. Shortland, 1860.
Aricat Harbour, C.B. ....	Richmond .....	8 10	4 0	5 0	.....	Capt. Bayfield, 1860.
Arisaig .....	Antigonish .....	10 6	3 3	5 3	.....	do
Aspee Bay .....	Victoria .....	7 30	4 0	6 0	.....	do
Avon River (mouth of) .....	Hants .....	12 30	40 0	48 0	.....	Capt. Shortland, 1860.
Basin of Mines (Noel Bay). ....	do	12 41	43 6	50 6	.....	do
Blind Bay .....	Halifax .....	7 46	6 0	7 6	.....	do
Cape North .....	Victoria .....	8 0	3 0	4 0	.....	do
Cheticamp, C.B. ....	Inverness .....	8 15	2 0	3 6	.....	Capt. Bayfield, 1867.
Digby Gut .....	Annapolis .....	11 0	23 0	27 6	.....	Capt. Shortland, 1862.
Guysborough Harbour. ....	Guysborough .....	8 20	4 6	6 6	.....	Capt. Bayfield, 1860.
Halifax .....	Halifax .....	7 49	5 0	6 0	.....	Com. Orlebar, 1853.
Hantsport .....	Hants .....	12 30	40 0	48 0	.....	Capt. Bayfield, 1853.
Ingonish (south) .....	Victoria, C.B. ....	8 11	2 9	3 11	.....	do
Liscomb Harbour, N.S. ....	Guysborough .....	8 0	4 6	6 6	.....	Capt. Bayfield, 1854.
Liverpool .....	Queen's .....	7 50	5 3	7 4	.....	do
Louisburg Harbour, C.B. ....	Cape Breton .....	8 0	4 0	5 0	.....	Capt. Orlebar, 1857-58.
Lunenburg .....	Lunenburg .....	7 54	6 0	7 3	.....	Capt. Shortland, 1861-62.
Mabou Harbour .....	Inverness .....	9 0	2 0	4 0	.....	Capt. Bayfield, 1847.
Margaree River (mouth of) .....	do	8 40	2 0	3 6	.....	do
Merigonish Harbour .....	Antigonish .....	10 6	3 3	5 3	.....	Capt. Bayfield, 1842.
Parrsborough .....	Cumberland .....	11 50	18 0	22 0	.....	do
Petit Passage .....	Digby .....	10 41	4 0	6 0	.....	Capt. Shortland, 1862.
Pictou Harbour .....	Pictou .....	10 0	4 0	6 0	.....	Capt. Bayfield, 1843.
Port Hood .....	Inverness .....	9 0	2 0	4 6	.....	do
Port Medway .....	Queen's .....	7 50	5 0	8 0	.....	Capt. Shortland, 1861-62.
Port Mouton .....	do	7 34	5 9	7 9	.....	do
Puhalico .....	Yarmouth .....	9 25	10 0	12 0	.....	do
Pugwash .....	Cumberland .....	10 30	4 0	7 0	.....	Capt. Bayfield, 1840.
St. Ann's, C.B. ....	Victoria .....	8 34	4 6	6 0	.....	do
St. Peter's Bay .....	Richmond .....	7 30	4 0	6 0	.....	do
St. Peter's Bay .....	do	7 30	0 0	4 0	.....	do

Puhalico .....	Yarmouth .....	9 25	10 0	12 0	.....	do	1850-53.
Pugwash .....	Cumberland .....	10 30	4 0	7 0	.....	do	1840.
St. Ann's, C.B. ....	Victoria .....	8 34	4 6	6 0	.....	do	1852-57.
St. Peter's Bay .....	Richmond .....	7 30	4 0	6 0	.....	do	1848.
St. Peter's Bay .....	do	7 30	0 0	4 0	.....	do	1851.

Fleets	10	0	4	0	6	0	Their diurnal inequality at times causes a difference of 2 hours in 2 tides at the same day, and of 2 ft. in their height.	do	Capt. Bayfield, 1843.
Inverness	9	0	2	0	4	6		do	1847.
Port Hood	7	50	5	0	8	0		do	1861-62.
Queen's	7	54	5	9	7	9		do	1861-62.
Port McWay								do	
Port Mouton								do	

Pulnicot.	9 25	10 0	0	12	0	Neap range, 8 ft.	do	do	1820-53.
Pugwash	10 30	4 0	6	0	0		do	do	1840
St. John's	8 34	4 6	6	0	0		do	do	1832-57.
St. Peter's Bay.	7 30	4 0	6	0	0		do	do	1848
Sable Island (north side).	7 30	0 0	4	0	0		do	do	1851
do (south side).	6 30	0 0	4	0	0		do	do	1851
Seal Island.	7 54	4 6	6	6	6	Neap range, 2½ ft.	do	do	1851
Shelburne	8 4	5 6	7	0	0		do	do	1854
Ship Harbour.	9 49	10 3	12	3	3		do	do	1846
Strait of Canso (north entrance)	9 15	2 0	4	0	0		do	do	1862
Sydney Harbour, C.B.	8 15	4 0	5	0	0		do	do	1850
Tatamagouche Bay	10 0	5 0	8	0	0		do	do	1849
Tor Bay	8 0	4 0	6	0	0		do	do	1841
Tracadie Harbour	9 15	2 6	4	0	0		do	do	1847
Yarmouth, N.S.	10 9	13 0	16	0	0	Neap range, 10 ft.	do	do	1862
Wallace Harbour	10 30	5 0	8	0	0		do	do	1840
Weymouth, Sissiboo River.	10 43	17 0	20	9	0		do	do	1855
Whitehaven, Marshall's Cove.	8 0	4 0	6	6	6	Neap range, 4½ ft.	do	do	1855

PROVINCE OF NEW BRUNSWICK.  
ATLANTIC OCEAN, GULF OF ST. LAWRENCE, AND BAIE DES CHALEURS.

Port or Harbour.	County.	High Water, Full and Change.	Rise of Tides.		Range of Tides.	Authority.
			Neaps.	Springs.		
		H. M.	Ft. In.	Ft. In.		
Baie Verte.....	Westmoreland.....	10 30	5 0	9 0	Highest spring tide, 10½ ft.	Public Works Dept., G. F. Baillairgé, 1871.
do	do	9 0	2 0	4 0	.....	.....
Bathurst.....	Gloucester.....	3 15	4 0	7 0	.....	Admiralty Charts, Capt. Bayfield, 1839.
Beaver Harbour.....	Northumberland.....	11 30	20 0	23 6	.....	do
Buctouche River.....	Kent.....	7 0	7 0	4 0	.....	do
Campbellton.....	Restigouche.....	4 0	7 0	10 0	.....	do
Campo Bello Island.....	Charlotte.....	11 21	20 0	23 6	Neaps range, 16½ ft.	do
Caracquette Harbour.....	Gloucester.....	2 45	3 0	6 0	.....	Capt. Owen, 1839.
Cocagne.....	Kent.....	7 30	2 0	4 0	.....	do
Folly Point, Cumberland Basin.....	Westmoreland.....	11 49	38 0	45 0	Highest spring tide, 46 ft.	Com. Shortland, 1861.
Fort Cumberland *.....	do	11 55	38 0	45 3	above ordinary low water springs.	Public Works Dept., G. F. Baillairgé, 1871.
Grand Harbour, Grand Manan.....	Charlotte.....	11 7	17 6	21 0	Neap range, 14 ft.	Admiralty Charts, Com. Shortland, 1855.
Grindstone, Cumberland Basin.....	Westmoreland.....	11 47	34 6	41 0	.....	do
Leveson.....	Charlotte.....	11 18	21 0	24 6	.....	Capt. Owen, 1861.
Miscou Harbour.....	Gloucester.....	3 30	3 0	5 0	.....	do
Quaco.....	St. John.....	11 35	25 0	30 0	.....	Capt. Bayfield, 1839.
Richibucto.....	Northumberland.....	2 6	2 6	4 0	.....	.....
Richibucto River.....	do	Once in 24 hours, 3 30 a.m.	2 6	4 0	.....	do
Sackville, Bay of Fundy.....	Westmoreland.....	11 57	38 0	45 3	.....	do
St. John Harbour.....	St. John.....	11 21	22 0	27 0	Neap range, 19 ft.	Com. Shortland, 1861.
Seal Cove, Grand Manan.....	Charlotte.....	10 34	13 0	20 0	do	Lieut. Harding, 1844.
Shediac Harbour.....	Westmoreland.....	8 0	2 0	4 0	.....	Com. Shortland, 1855.
Sheldrake River, Miramichi Bay.....	Northumberland.....	6 0	3 0	5 0	.....	Capt. Bayfield, 1839.
Shippegan Harbour.....	Gloucester.....	3 40	3 0	5 6	.....	do

\* Fort Cumberland—Observed by Saxby, 5th October, 1869.—Observed by G. F. Baillairgé, 25th October, 1876.  
50-00 ft. 46-00 feet above extraordinary low water springs.  
25-80 do 48-00 do extreme do

	1887.	1888.	1889.	1890.
Capricorn Bay	do	do	do	do
Sheldrake River	do	do	do	do
Miramichi Bay	do	do	do	do
Northumberland	do	do	do	do
Gloucester	do	do	do	do
Shippagan Harbour	do	do	do	do

\* Fort Cumberland—Observed by Saxby, 5th October, 1862. —Observed by G. F. Baillairgé, 25th October, 1876.

50'10 feet.	46'00 feet above extraordinary low water springs.
25'80 do	do do extreme do
48'00 do	do do extreme do

PROVINCE OF PRINCE EDWARD ISLAND.  
GULF OF ST. LAWRENCE.

Port or Harbour.	County.	High Water, Full and Change.	Rise of Tides.		Range of Tides.	Authority.
			Ft. In.	Ft. In.		
Bedeque Harbour	Prince	10 15	5 0	7 0	Admiralty charts, Capt. Bayfield, 1841.	
Cardigan Bay	King's	8 40	3 3	5 0	do do 1844.	
Casumpeque	Prince	5 40	2 0	3 0	do do 1841.	
Charlottetown	Queen's	10 45	7 0	9 6	do do 1843 44.	
Craynaud	do	10 0	6 0	8 0	do do 1842	
East Point	King's	8 30	5 0	3 6	do do 1847	
Grand (Boughton) River	do	8 40	5 2	4 5	do do 1843	
Hillsborough Bay	Queen's	10 45	7 1	9 5	do do 1842	
Murray Harbour	King's	9 6	3 3	6 3	do do 1843	
Richmond Bay	Prince	6 0	2 0	3 0	do do 1841	
St. Peter's Harbour	King's	8 0	2 6	4 0	do do 1847	
Tracadie Harbour	Queen's	7 0	2 0	4 0	do do 1847.	

PROVINCE OF QUEBEC.  
RIVER ST. LAWRENCE, NORTH AND SOUTH SHORES.

Port or Harbour.	County.	High Water, Full and Change.	Rise of Tides.		Range of Tides.	Authority.
			Neaps.	Springs.		
		H. M.	Ft. In.	Ft. In.		
Magdalen Islands.....	Gaspé.....	8 20	2 0	3 0		Admiralty Charts, Lieut. Collins, 1833.
Bay of Seven Islands.....	Saguenay.....	1 40	5 0	9 0		Admiralty Charts, Capt. Bayfield, 1831.
Bear Bay, Anticosti Island.....	do.....	1 10	3 0	5 3		do do
Bonne Espérance Harbour.....	do.....	9 15	2 6	5 0		do do
Bradore Bay.....	do.....	8 45	2 0	4 0	The stream of flood drives into this Bay, and the ebb out, but it is much influenced by the winds.	1834.
Berminia River.....	Saguenay.....	2 0	7 0	12 0		do do
Bic Island.....	Rimouski.....	2 15	8 6	14 0		do do
Brandy Pot.....	Témiscouata.....	3 6	10 0	17 0		do do
Cape Chatte.....	Gaspé.....	2 4	6 0	12 0		do do
Carleton Point.....	Bonaventure.....	3 0	4 0	6 0		do do
Cawee Islands.....	Saguenay.....	1 50	5 0	9 0		do do
Champlain.....	Champlain.....	9 45	2 0	3 0	The tide flows by the shore, but the current is always down.	do do
Chicoutimi.....	Chicoutimi.....	5 11	8 0	12 0		do do
Clearwater Point.....	Champlain.....	11 30	3 0	5 0		do do
Coacocho Bay.....	do.....	10 30	8 0	5 0		do do
East Cape, Anticosti Island.....	Chicoutimi.....	1 0	3 0	5 0		do do
Egg Island, W. Point, North Island.....	do.....	2 0	6 0	11 0		do do
Gaspé.....	Gaspé.....	2 40	3 0	5 0	Extraordinary Tides, 7 feet Ebbs 6h. 24m.; flows by the shore, 6h.	do do
Green Island.....	Témiscouata.....	2 45	9 6	16 0		do do
Kanouraska.....	Kanouraska.....	4 0	10 0	17 0		do do
Kegashka Bay.....	Saguenay.....	10 45	3 0	5 0		do do
Little Natashquan.....	Kanouraska.....	11 0	3 0	5 0		do do
Little Métis, at Boules.....	Rimouski.....		8 0	14 4		do do
Macquereau Point.....	Bonaventure.....	2 0	3 0	5 0		do do

Malbaie.....	Charlevoix.....	1 50	3 0	5 0	Admiralty Charts, Capt. Bayfield, 1832.
Manicouagan River.....	Saguenay.....	2 15	7 0	12 0	do do
Matane.....	Rimouski.....	2 20	7 0	11 0	do do
do.....	do.....	2 20	8 0	13 0	do do

Gaspé.....	2 0	6 0	11 0	do	1834.
Green Island.....	2 40	3 0	5 0	do	1832.
.....	2 45	9 6	16 0	do	1834.
Kamouraska.....	4 0	10 0	17 0	do	1834.
Kegashka Bay.....	10 45	3 0	5 0	do	1827-34.
Little Natashquan.....	11 0	3 0	5 0	do	1827-34.
Little Métis, at Boules.....	.....	8 0	14 4	do	1834.
Rimouski.....	.....	3 0	5 0	do	1834.
Macquereau Point.....	2 0	3 0	5 0	Pub. Works Dept., C. F. Roy, 1882.	1834.
.....	.....	.....	.....	Pub. Works Dept., C. F. Roy, 1882.	1834.

Malbaie.....	1 50	3 0	5 0	Admiralty Charts, Capt. Bayfield, 1832.	1834.
Manicouagan River.....	2 15	7 0	12 0	do	1834.
Matane.....	2 15	7 0	11 0	do	1827-34.
Métis.....	2 20	8 0	13 0	do	1827-34.
Mingan Harbour.....	1 16	4 0	6 0	do	1834.
Pearce Bay.....	0 0	3 5	5 5	do	1834.
Point du Lac.....	2 20	8 6	14 0	do	1827-34.
Portneuf.....	6 38	13 0	18 0	do	1830.
Quebec.....	7 45	1 6	3 6	do	1834.
Red Bay.....	.....	.....	.....	G. F. Baillarge, P. W. Dept., 1847.	1834.
Rimouski.....	3 7	7 0	16 6	Pub. Works Dept., J. Stewart, 1847.	1827-34.
Rivière du Loup.....	1 52	6 0	11 0	Admiralty Charts, Capt. Bayfield, 1827-34.	1836.
River Godbout.....	3 0	10 0	17 0	do	1827-34.
River Ouelle (Pointe aux Orignaux).....	8 0	3 0	5 0	do	1836.
St. Paul's Island.....	1 55	7 0	12 0	do	1827-34.
St. Nicholas Harbour.....	2 45	10 0	17 0	do	1827-34.
Tadoussac.....	.....	.....	.....	do	1827-34.
Three Rivers.....	10 30	1 0	1 0	do	1827-34.
St. Maurice.....	.....	.....	.....	do	1831-37.
West Point, Anticosti Island.....	2 0	4 0	6 0	do	1830.

Extraordinary Tides, 7 feet  
Ebb 6h. 24m.; flows by  
the shore, 6h.  
Tide ends.  
Ebb 6h. 18m.; flows 6h. 7m.  
Highest and lowest tides  
observed 24 and 10 feet.  
Ebb 6h. 19m.; flows 6h. 5m.  
Ebb 6h. 26m.; flows 5h. 25m.  
Ebb by the shore 6h. 15m.  
flows 6h. 8m. Both  
streams continue to run  
3h. after high and low  
water.  
Easterly gales cause the  
tide to rise one or two  
feet higher.

PROVINCE OF BRITISH COLUMBIA.  
PACIFIC OCEAN.

Port or Harbour.	Electoral District.	High Water, Full and Change.	Rise of Tides.		Range of Tides.	Authority.
			Neaps.	Springs.		
		Ft. In.	Ft. In.	Ft. In.		
Beaver Harbour..... Lat. 50° 42' 36" N. Long. 127° 25' 7" W.	Vancouver Island.....	0 30	11 6	15 9	Queen Charlotte's Sound, N.E. side of Vancouver Island.	Admiralty Charts, Capt. G. H. Richards, R.N., 1860.
Clayoquot Sound.....	do .....	12 0	5 to 8	12 0	S.W. side of Vancouver Island, on the Pacific Ocean.	do do 1861.
Esquimalt (Duntze Head)..... Lat. 48° 25' 49" N. Long. 123° 26' 45" W.	Victoria.....	3 0	7 to 10	7 to 10	Strait of Fuca.	do do 1858, 1861-62.
Frazer River .....	New Westminster.....	6 30	10 0	10 0	On mainland, Strait of Georgia.	do do 1860.
Kyuquot Sound .....	Vancouver Island.....	12 0	12 0	12 0	S.W. side of Vancouver Island, Pacific Ocean.	do do 1863.
Lat. 49° 58' 55" N. Long. 127° 9' 30" W.	do .....	5 0	Mean spring tides.	Mean spring tides.	N.E. side of Vancouver Island, Strait of Georgia.	
Nanaimo..... Lat. 49° 10' 15" N. Long. 123° 36' 36" W.	Vancouver .....	12 0	14 0	14 0	Flats dry at low spring tides.	do do 1862.
Nootka Sound (Friendly Cove)..... Lat. 49° 35' 31" N. Long. 126° 37' 32" W.	Vancouver Island.....	12 0	12 0	12 0	W. side of Vancouver Island, on Pacific Ocean.	do do 1862.
Port Moody .....	New Westminster.....	6 0	16 0	16 0	On mainland, Burrard Inlet, Strait of Georgia.	do do 1859-60.
Port Simpson (Village North Pt.)..... Lat. 54° 33' 51" N. Long. 130° 25' 36" W.	Cariboo.....	3 0	5 to 8	7 to 10	On mainland, towards upper end of Queen Charlotte's Islands.	Commander D. Pender, R.N., 1868.
Quatsino..... Lat. 50° 29' 25" N. Long. 128° 3' 39" W.	Vancouver Island.....	12 0	12 0	12 0	On S.W. side of Vancouver Island, towards upper end, on Pacific Ocean.	Admiralty Charts, Capt. G. H. Richards, R.N., [1863.
Sitka or New Arkhangel (Arsenal)..... Lat. 57° 2' 54" N. Long. 135° 17' 12" W.	On Territory ceded by Russia in 1867 to the United States Government.	0 30	12 9	12 9	On W. side of Baranoff Island, north of Queen Charlotte's Islands, on the Pacific Ocean.	Russian plan by Capt. Vossilief, 1850. Additions by A. P. Boxer, Master of H.M.S. "Alert," Commander Pearse, 1860.
Victoria (Lough Point)..... Lat. 48° 25' 22" N. Long. 123° 25' 2" W.	Victoria.....	3 0	5 to 8	7 to 10	That the rise of tide never exceeds 17 feet. Strait of Fuca, Vancouver Island, S.E. end.	Admiralty Charts, Capt. G. H. Richards, R.N., 1859.

Victoria (Laurel Point) .....  
Lat.  $48^{\circ} 25' 22''$  N.  
Long.  $123^{\circ} 23' 2''$  W.

3 0

7 to 10

5 to 8

Charlotte's Islands, on  
the Pacific Ocean, . . . . .  
Commander Pearse states  
that the rise of tide never  
exceeds 17 feet.  
Strait of Fuca, Vancouver  
Island, S.E. end.

Russian plan by Capt. Vossilief,  
1850.  
Additions by A. P. Boxer, Master of H.M.S.  
"Alert," Commander Pearse,  
1880.  
Admiralty Charts, Capt. G. H. Richards, R.N.,  
1889.

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OPENING AND CLOSING  
OF  
NAVIGATION  
AT VARIOUS CANADIAN PORTS  
FROM THE  
ATLANTIC OCEAN TO WINNIPEG,  
1883 to 1889.

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## OPENING and Closing of Navigation at

Name of Port.	Location.	Closed in 1883.	Opened in 1884.	Closed in 1884.	Opened in 1885.
Charlottetown, P.E.I.	Gulf St. Lawrence	Dec. 23.	April 24.	Dec. 20.	April 22.
Georgetown do	do	Jan. 12, '84.	do 24.	Jan. 26, '85.	do 24.
Pictou, N.S.	do	Dec. 23.	do 17.	Dec. 24.	do 21.
Sydney, C.B.	Atlantic Ocean	Jan. 3, '84.	do 26.	Jan. 19, '85.	May 4.
Shediac, N.B.	Gulf St. Lawrence	Dec. 1.	May 12.		
Campbellton, N.B.	Baie des Chaleurs	do 4.	April 27.	Dec. 12.	May 6.
Bathurst, N.B.	do	Nov. 29.	do 28.		
Perce, P.Q.	Gulf St. Lawrence	do 23.	do 25.	Dec. 1.	May 1.
Gaspé Basin, P.Q.	do	Dec. 11.	May 5.	do 8.	do 15.
Tadoussac, P.Q.	River St. Lawrence			Nov. 18.	do 16.
Quebec, P.Q.	do	Nov. 24.	April 30.	Dec. 12.	April 29.
Sorel, P.Q.	River Richelieu	do 28.	do 9.	do 11.	do 24.
St. John's, P.Q.	do	do 30.	do 16.	Nov. 29.	do 20.
Montreal, P.Q.	River St. Lawrence	Dec. 16.	do 22.	Dec. 18.	May 5.
Three Rivers, P.Q.	do				
Kingston, Ont.	Lake Ontario	Dec. 31.	April 19.	Dec. 31.	April 28.
Belleville, Ont.	do	do 14.	do 19.	do 12.	do 19.
Port Hope, Ont.	do	do 13.	do 1.	do 12.	do 15.
Toronto, Ont.	do	do 21.	March 30.	do 19.	do 25.
Port Stanley, Ont.	Lake Erie	do 28.	April 1.	do 19.	do 21.
Port Dover, Ont.	do	Nov. 30.	do 17.	do 11.	do 28.
Windsor, Ont.	Detroit River	Dec. 17.	March 15.	do 17.	Jan. 14.
Sarnia, Ont.	Lake Huron	Jan. 3, '84.	do 31.	do 25.	April 14.
Goderich, Ont.	do	Dec. 3.	April 20.	do 15.	May 6.
Kincardine, Ont.	do	do 28.	May 6.	Nov. 24.	do 6.
Owen Sound, Ont.	Georgian Bay	do 17.	April 26.	Dec. 1.	do 3.
Collingwood, Ont.	do	do 10.	do 23.	do 31.	do 7.
Warton, Ont.	do				
Saut-Ste-Marie, Ont.	Lake Superior	Dec. 9.	April 25.	Dec. 10.	May 6.
Port Arthur, Ont.	do	do 22.	May 6.	do 14.	do 13.
Winnipeg, Man.	Red River	Nov. 10.	April 24.	Nov. 1.	April 25.

various Po

Closed  
in  
1885.

Jan. 9, '86.  
Feb. 22, '86.  
Dec. 31.  
Jan. 14, '86.  
Dec. 7.  
do 10.  
do 1.  
Nov. 18.  
Dec. 26.  
Nov. 18.  
do 21.  
Dec. 4.  
Nov. 30.  
Dec. 7.  
Jan. 8, '86.  
Dec. 5.  
do 18.  
Jan. 8, '86.  
Dec. 22.  
do 1.  
do 9.  
Jan. 8, '86.  
Dec. 14.  
Nov. 30.  
Dec. 10.  
Nov. 24.  
Nov. 20.  
Dec. 27.  
Nov. 2.

Navigation at

various Ports in Canada, 1883 to 1889.

Closed in 1885.	Opened in 1885.	Closed in 1886.	Opened in 1886.	Closed in 1887.	Opened in 1887.	Closed in 1888.	Opened in 1888.	Closed in 1889.	Opened in 1889.
20. April 22.	20. April 22.	Jan. 9, '86. April 20.	Dec. 29.	April 26.	Dec. 27.	April 21.	Jan. 12, '89. March 30		
6, '85. do 24.	do 24.	Feb. 22, '86. March 30.	Feb. 8, '87.	do 6.	Jan. 23, '88.	do 30.	Feb. 25, '89. do 6		
24. do 21.	do 21.	Dec. 31. April 3.	Dec. 30.	do 11.	Dec. 25.	do 15.	Jan. 14, '89. do 14		
9, '85. May 4.	do 4.	Jan. 14, '86. do 19.	Jan. 7, '87.	do 26.	Jan. 10, '88.	do 25.	Feb. 8, '89. April 4		
12. May 6.	do 6.	Dec. 7. do 27.	Dec. 10.	May 7.	Dec. 23.	May 8.	Dec. 12. do 18		
		do 10. May 26.	do 4.	do 6.	do 1.	do 8.	Nov. 18. do 25		
		do 1. do 27.			Nov. 25.	do 8.	Dec. 5. do 25		
1. May 1.	do 1.	Nov. 18. April 12.	Dec. 5.	April 20.	do 23.	April 22.	Nov. 23. do 20		
8. do 15.	do 15.	Dec. 26. do 30.	do 11.	May 9.	Dec. 25.	May 15.	Dec. 27. May 1		
18. do 16.	do 16.	Nov. 18. do 30.	Nov. 22.	April 23.	Nov. 24.	April 10.	do 5. March 15		
12. April 29.	do 29.	do 21. do 29.	do 24.	do 30.	do 23.	do 29.	Nov. 24. April 23		
11. do 24.	do 24.	Dec. 4. do 21.	Dec. 3.	May 2.	do 30.	May 1.	Dec. 13. April 16		
29. do 20.	do 20.	Nov. 30. do 15.	Nov. 27.	April 27.	do 29.	April 19.	Nov. 24. do 18		
18. May 5.	do 5.	Dec. 7. do 24.	Dec. 4.	May 1.	Dec. 23.	do 29.	Dec. 14. do 27		
							Nov. 28. do 20		
31. April 28.	do 28.	Jan. 8, '86. April 9.	Dec. 30.	April 19.	Dec. 30.	do 12.	Jan. 19, '89. do 2		
12. do 19.	do 19.	Dec. 5. do 19.	Nov. 30.	do 25.	Nov. 30.	do 23.	Nov. 25. do 13		
19. do 15.	do 15.	do 18. do 2.	Dec. 7.	do 7.	Dec. 12.	do 13.	Dec. 10. do 2		
12. do 25.	do 25.	Jan. 8, '86. March 20.	do 4.	do 12.	do 9.	do 7.	do 20. March 15		
19. do 21.	do 21.	Dec. 22. do 21.	do 6.	do 4.	do 23.	March 31.	Feb. 9, '89. do 15		
11. do 28.	do 28.	do 1. April 8.	do 4.	do 8.	do 15.	April 7.	Dec. 12. April 23		
17. Jan. 14.	do 14.	do 9. do 28.	do 27.	Jan. 5.	do 16.	do 3.			
25. April 14.	do 14.	Jan. 8, '86. March 22.	do 15.	April 4.	do 4.	do 9.	Dec. 17. April 15		
15. May 6.	do 6.	Dec. 14. April 19.	Nov. 30.	May 2.	Nov. 23.	do 28.	Nov. 24. do 8		
24. do 6.	do 6.	Nov. 30. do 3.	Dec. 28.	April 20.	do 15.	May 2.	Dec. 4. March 26		
1. do 3.	do 3.	Dec. 10. do 15.	Dec. 11.	do 30.	Dec. 8.	do 4.	do 4. April 14		
31. do 7.	do 7.	Nov. 24. do 24.	do 3.	do 20.	do 2.	April 30.	do 1. do 22		
			do 24.	do 23.	Jan. 20, '88.	May 1.	Nov. 28. do 18		
10. May 6.	do 6.	Nov. 20. April 26.	do 4.	May 1.	Dec. 1.	do 8.	Dec. 4. do 17		
14. do 13.	do 13.	Dec. 27. do 29.	do 20.	do 11.	do 22.	do 21.	do 29. do 13		
1. April 25.	do 25.	Nov. 2. do 14.	Nov. 4.	April 25.	Nov. 1.	April 23.	Nov. 15. do 25		

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OPENING AND CLOSING  
OF  
NAVIGATION  
AT  
QUEBEC, MONTREAL, KINGSTON AND TORONTO,  
1814 TO 1889.

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OPENING and Closing of Navigation at Quebec, Montreal, Kingston and Toronto,  
from 1814 to 1889.

Years.	QUEBEC.		MONTREAL.		KINGSTON.		TORONTO.	
	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.	Opened.	Closed.
1814	April 28.	Dec. 7.						
1815	do 28.	do 5.						
1816	do 23.	Nov. 29.						
1817	May 6.	Dec. 5.						
1818	April 27.	do 1.						
1819	do 30.	do 7.						
1820	do 24.	do 1.						
1821	May 3.							
1822	April 29.	Dec. 3.						
1823	do 25.							
1824	do 20.	Dec. 11.						
1825	do 19.							
1826	do 22.	Dec. 21.						
1827	do 14.							
1828	do 12.							
1829	do 18.							
1830	do 17.	Dec. 4.						
1831	do 21.	Nov. 30.						
1832	do 29.	do 30.			April 27.	Dec. 19.		
1833	do 19.	do 25.			do 7.	Jan. 1, '34.		
1834	do 18.	Dec. 9.			Mar. 19.	Dec. 22.		
1835	May 4.	do 1.			April 6.	do 31.		
1836	do 10.	do 1.			do 23.	do 26.		
1837	do 2.	do 12.			do 11.	Jan. 16, '38.		
1838	do 1.	Nov. 26.			do 6.	Dec. 18.		
1839	April 23.	Dec. 19.			do 8.	do 20.		
1840	do 21.	do 2.			Mar. 19.	do 23.		
1841	May 4.	do 14.			April 23.	do 31.		
1842	April 26.	do 2.			Mar. 24.	do 31.		
1843	May 5.	do 1.			April 25.	Jan. 3, '44.		
1844	April 23.	Nov. 29.			Mar. 9.	do 12, '45.		
1845	do 23.	Dec. 2.			April 2.	do 9, '46.		
1846	do 14.	do 9.			Mar. 31.			
1847	May 11.	do 3.			April 11.	Jan. 6, '48.		
1848	April 18.	do 5.			do 3.	Dec. 30.		
1849	do 24.	do 7.			do 3.	do 31.		
1850	do 26.	do 10.			do 5.	do 26.		
1851	do 22.	do 5.			do 2.	do 22.		
1852	do 30.	do 19.			do 19.	Jan. 14, '53.		
1853	do 26.	do 3.			do 4.	do 5, '54.		
1854	May 5.	do 5.	April 25.	Dec. 6.	do 10.	do 13, '55.		
1855	do 8.	Nov. 27.	do 28.	do 12.	do 17.	do 1, '56.	April 2.	Dec. 19.
1856	April 22.	Dec. 2.	do 24.	do 3.	do 8.	Dec. 31.	do 17.	do 22.
1857	do 28.	do 4.	do 18.	do 13.	do 2.	Feb. 2, '58.	Feb. 27.	do 30.
1858	do 16.	do 3.	do 9.	do 12.	do 26.	Jan. 8, '59.	Mar. 4.	do 21.
1859	do 26.	Nov. 29.	do 4.	do 11.	do 15.	Dec. 25.	Feb. 7.	do 30.
1860	do 20.	Dec. 8.	do 10.	do 7.	do 12.	Jan. 10, '61.	Jan. 10.	do 31.
1861	do 53.	do 17.	do 24.	do 22.	do 8.	do 4, '62.	do 2.	do 31.
1862	do 11.	do 5.	do 23.	do 7.	do 14.	do 17, '63.	do 2.	do 30.
1863	May 1.	do 4.	do 25.	do 12.	do 16.	do 1, '64.	do 7.	do 21.
1864	April 19.	do 13.	do 13.	do 11.	do 5.	do 4, '65.	Feb. 3.	do 29.
1865	do 18.	do 9.	do 10.	do 16.	Mar. 28.	do 5, '66.	Mar. 25.	do 30.
1866	do 27.	do 15.	do 19.	do 15.	April 11.	do 5, '67.	April 3.	do 26.
1867	do 17.	Nov. 29.	do 22.	do 6.	do 8.	Dec. 18.	Mar. 28.	do 9.
1868	do 23.	do 28.	do 17.	do 9.	Mar. 31.	do 24.	April 6.	do 12.
1869	do 27.	do 27.	do 25.	do 6.	April 17.	Jan. 8, '70.	do 1.	do 3.
1870	do 16.	Dec. 2.	do 18.	do 18.	do 13.	Dec. 31.	do 3.	do 24.
1871	do 22.	Nov. 25.	do 8.	do 1.	Mar. 16.	do 25.	Mar. 11.	Nov. 30.
1872	do 30.	do 26.	May 1.	do 8.	April 22.	do 21.	April 12.	Dec. 10.
1873	do 28.	do 22.	April 25.	Nov. 26.	do 24.	Jan. 14, '74.	do 14.	Nov. 26.
1874	do 28.	do 25.	do 25.	Dec. 13.	Mar. 28.	do 5, '75.	Mar. 16.	Dec. 20.
1875	do 29.	do 23.	May 3.	Nov. 29.	April 19.	Dec. 23.	April 16.	Nov. 30.
1876	May 6.	do 24.	April 27.	Dec. 10.	do 18.	do 20.	do 11.	Dec. 9.
1877	April 25.	do 26.	do 17.	Jan. 2, '78.	do 9.	Jan. 8, '78.	Mar. 25.	do 19.
1878	do 20.	do 25.	Mar. 30.	Dec. 23.	Mar. 11.	do 2, '79.	do 9.	do 16.

OPENING and

Years. Op

1879 April  
1880 do  
1881 May  
1882 do  
1883 do  
1884 April  
1885 do  
1886 do  
1887 do  
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and Toronto,  
 OPENING and Closing of Navigation at Quebec, Montreal, Kingston and Toronto  
 from 1814 to 1889—*Concluded.*

TORONTO.		QUEBEC.		MONTREAL.		KINGSTON.		TORONTO.	
Opened.	Closed.	Years.	Opened.	Closed.	Years.	Opened.	Closed.	Years.	Opened.
		1879	April 29....	Nov. 28....	April 24....	Dec. 19....	April 21....	Dec. 28....	Mar. 25....
		1880	do 30....	do 27....	do 17....	do 3....	Mar. 23....	do 21....	Feb. 19....
		1881	May 1....	do 24....	do 21....	Jan. 2, '82..	April 12....	Jan. 12, '82	April 16....
		1882	do 5....	do 25....	do 11....	Dec. 9....	Mar. 7....	.....	Feb. 27....
		1883	do 2....	do 24....	do 26....	do 16....	April 19....	Dec. 31....	April 15....
		1884	April 30....	Dec. 12....	do 22....	do 18....	do 19....	do 31....	Mar. 30....
		1885	do 29....	Nov. 21....	May 5....	do 7....	do 28....	Jan. 8, '86	April 25....
		1886	do 29....	do 24....	April 24....	do 4....	do 9....	Dec. 30....	Mar. 20....
		1887	do 30....	do 28....	May 1....	do 22....	do 19....	do 30....	April 12....
		1888	do 29....	do 24....	April 29....	do 14....	do 12....	Jan. 19, '89	do 7....
		1889	do 23....	+Dec. 15....	do 14....	do 29....	do 2....	do 22....	Mar. 15....
		1890	.....	.....	.....	.....	Mar. 26....	.....	do 15....

\* December, 20—Ice broke up and reformed several times.

† The ice formed, the 4th December, in the Tidal Basin and the Wet Dock.

The ice formed, the 14th December, in the River St. Charles.

The ice bridge formed, the 15th December, between the Island of Orleans and the north shore, and, on the 20th following, the ice gave way and had not reformed at the close of the year.

See Appendix No. 7 of General Report of 1867, pages 393 to 400.

For dates of opening and closing of navigation at other ports and on the canals of Canada, together with the draft of water, etc., see General Report Public Works, 1867-1882, pages 906-935, and subsequent annual reports Public Works, also annual reports on Railways and Canals, up to 1890.



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PORT OF MONTREAL.

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D A T E S

OF

OPENING AND CLOSING OF NAVIGATION,

FROM

1864 to 1889.

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## PORT OF MONTREAL.

MEMORANDUM TAKEN FROM THE HARBOUR MASTER'S REPORTS, GIVING THE DATES OF THE OPENING AND CLOSING OF NAVIGATION FROM 1864 TO 29<sup>TH</sup> DECEMBER, 1889.

- 1864—The ice in the harbour began to break and move on the 7th of April; on the 13th, river was clear; close of navigation, 10th December.
- 1865—On the 1st of January, the water gradually rose; on the 14th, the ice shoved; on the 15th, the ice remained stationary.
- 1866—Opening of navigation, 19th April; on the 5th January, 1886, the river was full of ice; on the 6th, the ice became stationary.
- 1867—On the 1st of January, the water was level with the wharves, ice forming fast; on the 9th ice became stationary. The first shove of the ice took place on the 14th April; on the 22nd the harbour was clear of ice.
- 1868—The winter was unusually cold; the river was frozen at an early date, teams crossed on the 16th of December, 1867; on the 19th of March, 1868, ice shoved; on the 4th of April the ice shoved heavily opposite the city; on the 14th and 15th the ice kept moving; on the 17th the harbour was clear.
- 1869—December 28th, the river was frozen over early; on this date, the first team crossed to St. Lambert; in the beginning of 1869, the ice was considered firm for the winter; on the 13th April the ice shoved; on the 18th shoved again; on the 19th it shoved, flooding Griffintown, which continued until the 23rd; at 10 a.m. ice below gave way; on 25th the harbour clear of ice.
- 1870—On the 1st January, channel opposite city free of ice; on the 8th, crossed on foot; on the 9th, ice shoved; no crossing until 13th; teams crossed on the 15th; on 17th thaw set in, which lasted some time; on 31st March, the ice opposite the city was bad; the first shove on the 9th April; shoved on 10th and 11th; on the 17th harbour clear of ice.
- 1871—On the 4th January, river frozen over; on 6th became mild, ice shoved; on 11th teams crossing; on 15th March a slight shove; 17th shoved again; on 31st last crossing; 3rd April the ice kept moving; on 10th harbour clear.
- 1872—When the year commenced the river was frozen and teams crossing; on 18th April first shove; on 28th harbour clear; on 1st May vessels arrived in port.
- 1873—On the 1st January the river was frozen over and ice stationary, teams crossing; on 11th April the ice shoved, and continued to do so daily until the 21st, when it gave way; on the 25th Str. "William" arrived from Sorel.

- 1874—On 17th January, the river was frozen over; on 21st, teams crossed from Longueuil; 18th April, first shove; on 23rd, harbour free from ice; 25th a number of small craft arrived in port. The ice-bridge at Cap Rouge held firm until the 9th of May.
- 1875—On the 1st January, the river opposite the city was full of ice; teams crossed below Hochelaga on the last of the year 1874; on 4th January, 1875, ice became stationary. The winter was the coldest that had been experienced for many years. The first ice shoved on the 24th April; on 29th harbour clear; on the 1st May a May-pole was placed on the ice, opposite Longueuil; on 3rd, river vessels arrived from Boucherville; on the 7th, ice-bridge at Cap Rouge gave way. On the 5th, December ice became stationary; on 21st, teams crossed to the city, the earliest on record.
- 1876—When January commenced, the river was frozen and ice good; on 12th April, ice got bad; on 16th, first shove, and shoved daily until 26th; on 27th, several vessels arrived from Boucherville. On 19th December, the ice was good, persons crossing on foot; 23rd, teams crossing.
- 1877—When the year commenced, the river was frozen over; the weather in April was fine and mild; on the 5th, the ice began to get bad; on the 8th, the first shove and moved downwards; on the 14th, the channel was clear as far as Hochelaga; on the 17th, the tug "Francis" arrived from Boucherville. The weather was mild this fall; the navigation was still open on the 31st of December.
- 1878—On the 1st of January, the Longueuil ferry still running; in the afternoon left the harbour with a party on a pleasure excursion to Boucherville; on the 17th, people crossed the ice on foot; on 24th, good crossing. The 7th of January was the coldest day of the winter; at 8 a.m.  $15^{\circ}$  below zero; on the 1st of February, roads were made; on the 18th a road was made to Laprairie, and on the last day of the month, these roads were considered unsafe. 1st March, cold snap; on the 2nd, teams again crossed to St. Lambert and Laprairie; on the 12th, again abandoned; on the 16th first open water; on the 18th, first shove of ice; on 22nd, channel clear as far as Pointe-aux-Trembles; on the 29th, the steamer "Montarville" came into the harbour but had to return to Boucherville; on the 30th, tug "St. Francis" arrived in port; on the last day of the year the river was full of drift ice.
- 1879—On the 1st of January, the weather was fine; in the afternoon a boat's crew descended the Lachine Rapids in safety; on the 25th, the river was full of ice; on 26th, teams crossed at Longueuil; on the 1st February, a road was made from St. Lambert; on 13th February, a road was made from Laprairie; on the 12th April, the ice shoved; after the 15th, the ice kept daily moving downwards; on the 18th, the ice became so closely packed and stationary that people crossed on foot; on 23rd, steamer "St. Lambert" arrived in port from Boucherville. On the 22nd December, it was very cold,  $22^{\circ}$  below zero; on the 25th river full of ice; on 27th, crossing on foot; teams crossing at Longueuil.

1880—On the 1st of January, weather fine ; at 8 a.m.  $4^{\circ}$  below zero, river opposite city full of ice, teams crossing below Longueuil ; on the 2nd, crossing on foot to St. Lambert ; the 13th, commenced laying a railroad track on the ice from Hochelaga to Longueuil, completed on the 30th ; on the following day the road was opened ; on the 1st April, ice began to get bad ; on the same day, a commencement was made to remove the ice-bridge railroad ; 5th April, first shove of the ice ; on the 6th, ice shoved again ; on the 7th, a very heavy shove on Island Mouton ; it was piled up 44 feet ; the water in the harbour at that time, was 17 feet above the summer level ; on the 13th, a large quantity of ice left the harbour ; on the 17th, river craft arrived from Boucherville ; on the 29th April, the ice-bridge at Cap Rouge, gave away ; on the 3rd of December, the river was full of ice ; Longueuil ferry-boat left for winter quarters ; on the 29th, roads were commenced on the ice to St. Lambert.

1881—The New Year commenced with fine weather. On the 5th, railway cars commenced crossing at Longueuil ; on the 8th of April, the ice commenced breaking up ; 13th, channel opposite city clear ; on 19th, tug "C. W. Francis" arrived in port, being the first arrival of the season ; on the 27th, S.S. "Peruvian" arrived from Sorel where she had wintered ; Last departure for sea, 23rd November ; 31st December, fine, mild weather ; the year closed with open navigation, the "Longueuil" making regular trips.

1882—Navigation opened on 11th of April and closed on 9th December ; first arrival from sea, 6th May ; last departure for sea, 21st November ; 9th December, very cold, ice making fast ; 21st December, crossing on ice at Longueuil ; 31st, still open opposite the city. The month throughout was cold, with good sleighing from the 10th.

1883—Opening of navigation, 27th April ; close of navigation, 16th December ; first arrival from sea, 5th May ; last departure for sea, 20th November ; 31st December, ice making fast ; 3 p.m. ice taken and stationary ; water within 2 feet 5 inches of top of revetment wall.

1884—Opening of navigation, 22nd April ; close of navigation, 18th December ; first arrival from sea, 2nd May ; last departure for sea, 20th November ; 31st December, very mild temperature,  $40^{\circ}$  ; river open opposite the city.

1885—Opening of navigation, 5th May ; close of navigation, 7th December ; first arrival from sea, 8th May ; last departure for sea, 20th November ; 31st December, river full of ice, to the head of St. Mary's Current ; opposite the city, open water.

1886—Opening of navigation, 24th April ; close of navigation, 4th December ; first arrival from sea, 30th April ; last departure for sea, 25th November ; 30th December, ice opposite the city stationary ; 31st, roads making on ice to St. Lambert and Longueuil.

1887—Opening of navigation, 1st May ; close of navigation, 23rd December ; first arrival from sea, 3rd May ; last departure for sea, 28th November ; 31st December, crossing ice on foot this morning from Longueuil to Hochelaga.

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1888—Opening of navigation, 29th April; close of navigation, 14th December; first arrival from sea, 4th May; last departure for sea, 22nd November; 31st December, rain this morning; very mild, most unseasonable weather.

1889—Opening of navigation, 14th April; close of navigation, 29th December; first arrival from sea, 27th April; last departure for sea, 23rd November; 22nd January, crossing ice on foot at Longue Pointe; 25th, teams crossing on ice from Longueuil to Cotton Factory at Hochelaga; road making to St. Lambert's; 31st December, ice making on the river.

(Signed)

THOMAS HOWARD,

*Harbour Master.*

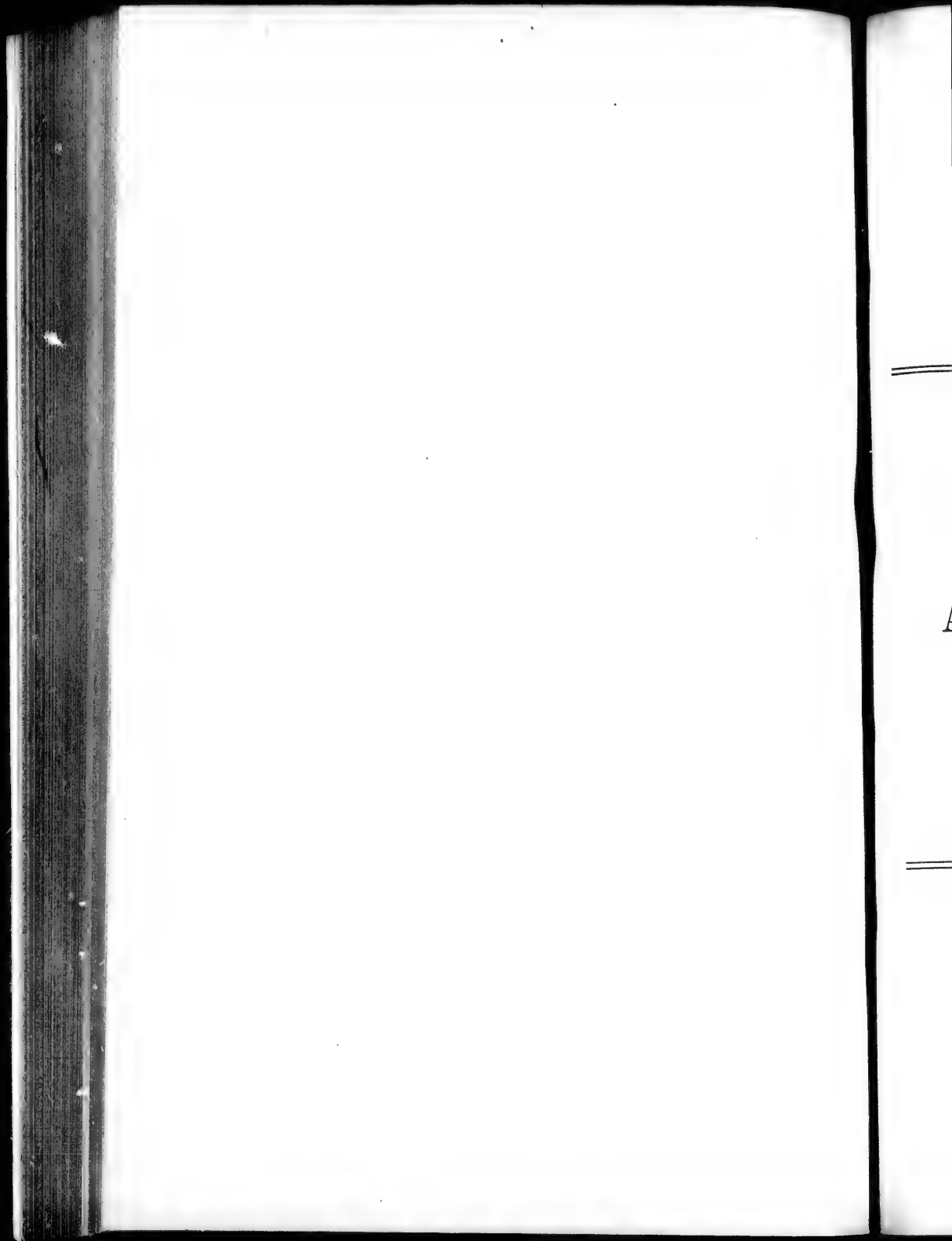
MONTREAL, 17th October 1890.

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*See Report of Chief Engineer of Public Works on the St. Lawrence Bridge and Manufacturing Company's scheme for proposed works, dated 19th March, 1883, published same year.*

*Also:—Report of the Commission of Engineers appointed by the Government of Canada to enquire into the causes of the Floods at Montreal and to suggest remedies for their removal. Commissioners:—Thos. C. Keefer, C.M.G. (chairman); Henry F. Perley, John Kennedy, Percival W. St. George. Published by Order of the City Council of Montreal, 15th April, 1888, and in Part II of Public Works Report, 1889-90.*

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PORTS

ON THE

ATLANTIC AND PACIFIC OCEANS

OPEN TO

NAVIGATION THE WHOLE YEAR.

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NAMES of various Ports which are open to Navigation, the whole year.

Name of Port.	County.	Province.	Depth of Water available at Low Water.	Remarks.
			Feet.	
Annapolis..	Annapolis..	Nova Scotia	15 to 20	In very severe winters, ice forms, but screw steamers can always enter.
Arichat.....	Richmond, C.B.....	do	... 40 to 75	Some years this harbour may be obstructed for a few days by drift ice in spring.
Barrington.	Shelburne...	do	... 12 to 20	At anchorage, wharves dry at low water.
Digby.....	Digby.....	do	... 18	About 10 ft. at end of steamboat pier.
Halifax.....	Halifax.....	do	... 20 to 30	At wharves, 70 to 180 ft. in harbour.
Liverpool...	Queen's.....	do	... 7	On bar, at Brooklyn, 24 ft.
Lockport...	Shelburne...	do	... 8	
Louisburgh	Cape Breton	do	... 30 to 70	Easy of approach; safe, and free from ice in winter.
Lunenburg.	Lunenburg.	do	... 12	
Parrsboro'..	Cumberl'nd	do	... ..	Dry in harbour at low water.
Shelburne...	Shelburne...	do	... 40 to 60	
Yarmouth..	Yarmouth..	do	... 13	
St. Andrews	Charlotte....	New Brunswick.....	14	In inner harbour.
St. John...	St. John....	do	... 24	At entrance of harbour; 60 ft. in harbour.
St. Stephen.	Charlotte....	do	... 6	30 ft. at the ledge, 4 miles below the town.
*Tadoussac	Saguenay..	Quebec.....	30 to 50	Anchorage for ships in from 17 to 18 fathoms, on clay bottom.
Morpeth....	Kent.....	Ontario.....	9	11 ft. at outer end of wharf.
Windsor....	Essex.....	do	.....	

\* See Memorandum respecting Tadoussac Harbour at pp. 382-383 of Appendix No. 8, of Report 1867-1882.

Victoria, Nanaimo, Burrard Inlet and all other Ports of British Columbia, up to Skeena River, remain always open. New Westminster is liable to be closed 7 to 15 days.

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**VARIOUS**  
**FORTS OR TRADING STATIONS,**  
**CITIES, TOWNS, VILLAGES AND OTHER SETTLEMENTS**

COMPRISED IN THE

**DIOCESES OF**  
**BRITISH COLUMBIA, MANITOBA, THE NORTH-WEST, HUDSON'S BAY**

AND

**LABRADOR.**

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**FORTS OR TRADING STATIONS,  
CITIES, VILLAGES, ETC.,  
COMPRISED IN THE DIOCESES OF BRITISH COLUMBIA, MANI-  
TOBA, THE NORTH-WEST, HUDSON'S BAY AND LABRADOR.**

**ALBERTA DISTRICT.**

St. Albert, at 9 miles to the north-westward of Edmonton, is the seat of the See of the R. C. Bishop, Mgr. Vital Grandin, since 21st Sept., 1871, when it was first established. This See comprises:—Edmonton (St. Joachim); Our Lady of Lourdes, Notre Dame des Sept-Douleurs, St. Thomas, Stony Point, Ste-Anne (Lake)†, St. Alexandre, Cunningham School, Our Lady of Victories (Lac-la-Biche)‡, in the DISTRICT OF ST. ALBERT.—Calgary, Banff, Industrial School (High River), Blackfoot Crossing, Fort McLeod, Lethbridge, Blood Reserve, and Belly River, in the DISTRICT OF CALGARY.—St-Laurent, St-Antoine (Batoche), St-Louis, Sacré-Cœur (Duck Lake), Prince Albert, Lake Muskeg and Ile-à-la-Crosse, in the DISTRICT OF ST-LAURENT.—Lac Froid (Cold Lake), Lac d'Oignon, Lac la Selle, Battleford, Ste-Angèle and the Thunderchild Reserve, in the DISTRICT OF PITT.—Lac Caribou, Pelican Lake and Cumberland House, in the DISTRICT OF CUMBERLAND.

The entire Diocese contains 1 R. C. Bishop, 41 Priests, O.M.I., 2 Secular Priests, 20 Lay Brothers, 8 Religious Institutions, 38 Catholic Schools, 3 Orphan Asylums, 30 Sisters of Charity, 22 Female Auxiliaries, 32 Faithful Companions of Jesus, and 15,000 Catholic Indians. A portion of the diocese, it is announced, has recently been detached from it, under the name of the Vicariate Apostolic of Saskatchewan.

†*Note A.—Ste. Anne Lake, Fort or Post.*

At about 50 miles from Edmonton.

First Catholic mission established by the Rev. J.-Bte. Thibault, V.G., in 1842; he was sent there by Mgr. Provencher. At that time there was a Methodist mission under Rev. Mr. Rundel at Edmonton.

‡*Note B.—White Fish Lake, Fort or Post.*

At 40 miles south of Lac-la-Biche the Methodists have an important "Cree mission."

**ATHABASCA—MACKENZIE, N.W.T.**

The principal settlements or missions may be enumerated as follows:—

ST-BERNARD (Little Slave Lake):—Trout Lake, Jawatwaway, Athabasca Landing; NATIVITY OF THE VIRGIN MARY at Fort Chipewyan and Lake Athabasca:—N. D. des Sept-Douleurs, Fort McMurray, Wabaska and Point Providence; ST. CHARLES (Fort Dunvegan):—N. D. des Neiges (Rocky Mountains), Battle River, Smoke River and Grande Prairie; PROVIDENCE:—Trout Lake, Grosse-Ile, Montagne de Tondre; ST. HENRI (Vermilion):—Little Red River, Rivière-aux-Fouines, Vieux Fort; ST. JOSEPH (Fort Resolution):—Fond du Lac, Ste. Anne and Rivière aux Bœufs; ST. MICHEL (Fort Rae); ST. RAPHAEL:—St. Paul of the Rocky Mountains, Fort Nelson and Fort Halket; FORT SIMP-

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Alaska  
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SON (Sacré-Cœur de Jésus) and Fort Wrigley ; STE. THÉRÈSE (Fort Norman):—Great Bear Lake ; N. D. de Bonne Espérance (Fort Good Hope):—Peel's River, Sacred Heart of Mary on the Mackenzie River, Delta of the Mackenzie at the Esquimaux settlements.

These and others are in the R. C. Vicariate-Apostolic of the late Mgr. Faraud, O.M.I., and of his auxiliary, Mgr. Isidore Clut. This Vicariate embraces most of the territory in the Anglican Dioceses of the Mackenzie River under Bishop W. C. Bompas, and of the Arthabasca, under Bishop R. Young.

The R. C. Vicariate contains bishop (Mgr. Clut since the demise of Mgr. Faraud, 27th Sept., 1890), 21 priests, 23 lay brothers, 3 male institutions, 3 female institutions, 3 orphan asylums, 3 hospitals, 8 sisters of charity and their female auxiliaries.

## BRITISH COLUMBIA.

### MAINLAND.

The City of New Westminster, where the penitentiary and other public buildings are situated, was founded by Col. R. C. Moody in February, 1859 ; the City of Vancouver, the present western terminus of the Canadian Pacific Railway, was founded by the C. P. R. Co., towards 1887 at Burrard Inlet.

The various cities, towns, villages and mining or fishing establishments, etc., throughout the Province, on the mainland, are situated in the Anglican Diocese of New Westminster, under Bishop A. W. Sillitoe, and in that of Caledonia under Bishop W. Ridley ; both of these Sees are comprised in the R. C. Vicariate-Apostolic of Mgr. Durieu.

### VANCOUVER ISLAND.—PACIFIC OCEAN.

The City of Victoria, founded by Governor Douglas, 16th March, 1848. Esquimaux where the Graving Dock is situated and the great coal mines at Nanaimo, are the most important places on the Island, where Government works have been executed or applied for. Apart from these there are various settlements or posts at Saanitch, Cowichan, Ahousiat, Hlesquiat, Clayoquot and Kuyoquot, etc. They are in the Anglican diocese of Columbia, which was established in 1859 and placed under Bishop George Hills ; this See is comprised in the Roman Catholic diocese of Vancouver Island and of the Alaska Territory which was established 30th November, 1847, and is now under Mgr. J. Lemmens who resides at Victoria.

### GULF OF ST. LAWRENCE.

#### North Shore.

St. Pierre, Pointe aux Esquimaux, St. Elisée de Betshiamits, Saut-au-Cochon, St. François-Xavier de Manicouagan, St. Patrice on the Pentecost River, Sept-Iles, Moisie, Godbout, etc., River Magpie, River St. John, Sheldrake, Rivière-au-Tonnerre, Mingan, etc., N. D. de Nataskouan, Piastierbée, Ste. Anne, Tête-à-la-Baleine, S. C. de Jésus de Bonne Espérance, Belles Amours, Lourdes, Notre Dame de Bersimis, and other Montagnaises missions, Naskapis and Esquimaux missions, etc.

## ISLAND OF ANTICOSTI.

St. Alfred, English Bay, St. Ludger, and Anse aux Fraises.

The preceding are in the Anglican diocese of Quebec, under Bishop J. W. Williams, and in the Prefecture Apostolic of the Gulf of St. Lawrence. The former was founded, 1st November, 1793, under Bishop Jacob Mountain, and the latter, 29th May, 1882, under Mgr. F. X. Bossé, who resides at Pointe-aux-Esquimaux.

## HUDSON'S BAY TERRITORY.

## SOUTHERN PORTION.

Among the various establishments hitherto or still frequented, the following may be enumerated:—

Ft. Severn, Beaver Lake H.,—Osnaburgh H., Martin's Falls and Fort Albany on the E. Albany, on S.W. side of James' Bay; Moose Factory, and Hannah Bay H. at mouth of Harricanaw River, at S. end of James' Bay; Lake Abitibi H.; Lake Temiskaming H., Ft. William, Allumette, Coulonge, Calumet and Portage du Fort, on the Upper Ottawa; Rupert H. at mouth of Rupert R., East Main R., Fort at mouth of Fort George or Victoria at mouth of Mistassibi or Big River, on E. side of James' Bay; H. B. Post at mouth of Great Whale R.; H. B. Post at mouth of Little Whale R., on E. side of Hudson's Bay; H. B. Post at S.W. end of Lake Mistassini which discharges into the Rupert River; Fort Chimo H. B. Post, on the lower portion of Kokskeak or South River, which discharges into the southern end of Ungava Bay, Hudson's Strait.

The above, etc., are in the Vicariate Apostolic of Pontiac, founded 22nd Sept., 1832, under Mgr. N. Z. Lorrain, and in the Anglican Diocese of Moosonee, under Bishop J. Horden, founded in 1872.

## LAKE ST. JOHN.

*Saguenay Reserve Region.*

There are numerous settlements around the Lake, the principal of which are S. Cœur de Marie, St. Joseph d'Alma, St. Gédéon, St. Jérôme, the mouth of the R. Métabetchouan, Pte. aux Trembles or St. Louis de Chambord, Notre Dame du Lac or Roberval, the Pointe Blue Indian Reserve, St. Prime, St. Felicien, St. Cyrille, St. Méthode.

These and many others are in the R. C. Diocese of Chicoutimi, under Mgr. L. N. Bégin, who resides at Chicoutimi, and in the Anglican Diocese of Quebec, under Bishop J. W. Williams. The See of Chicoutimi was founded 4th Aug., 1873, under Bishop Dominique Racine.

## PROVINCE OF MANITOBA.

Winnipeg, the capital of this Province, was founded towards 1860, prior to which St. Boniface was the most important place in the North-West, having been the seat of the See of the R. C. Bishop, Mgr. J. N. Provencher, since 1847; Archbishop Alex. Taché, who succeeded him in 1853, still resides there.

Manitoba and part of the territory to the eastward are in the Anglican diocese of Rupert's Land, under Bishop R. Machray; this diocese was first established in 1849, under Bishop David Anderson.

Various public buildings and other important works have been executed at Winnipeg and other parts of the Province by the Federal and Provincial Governments.

### PROVISIONAL DISTRICTS, Etc.

Regina is the seat of Government for the North-West Territory and the Provisional Districts of Assiniboia, Alberta, Athabasca, Saskatchewan and Keewatin.

These districts have been provided with various public buildings at Calgary and at several of the towns, etc., which have sprung into existence since the construction of the C. P. Ry.

Assiniboia is in the Anglican Diocese of Qu'Appelle, which was established 24th June, 1884, under Bishop J. R. A. Anson.

Alberta and Saskatchewan are in the Diocese of Calgary and Saskatchewan; first established in 1874, and now under W. C. Pinkham.

Athabasca forms part of the Anglican Diocese of the same name, which was established in 1874, and is now under Bishop R. Young.

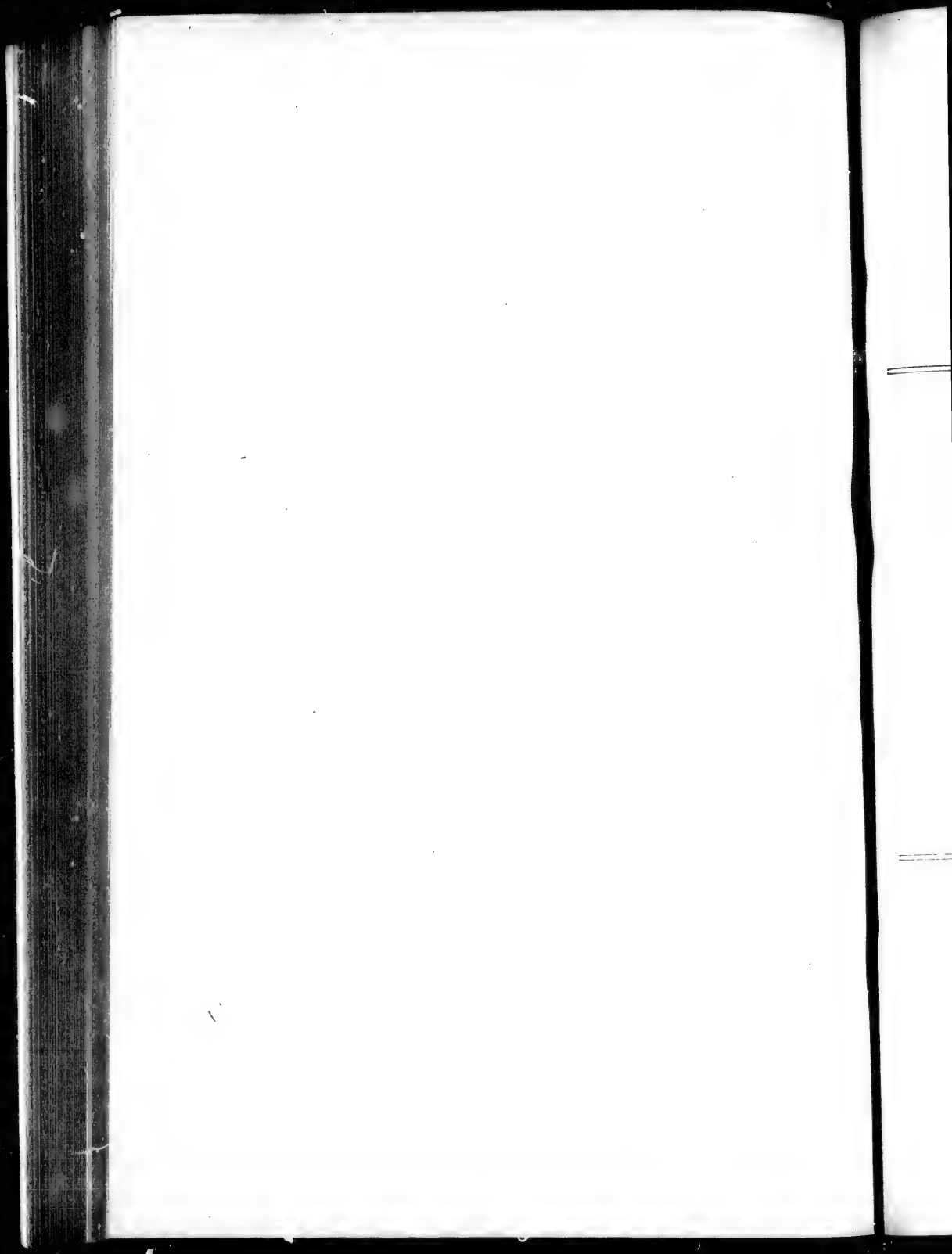
Assiniboia, Manitoba, Keewatin and part of the territory eastward are comprised in the R. C. Archdiocese of Mgr. Taché.

Alberta, Saskatchewan, part of Athabasca and of the territory eastward and northward are comprised in the R. C. Diocese of St. Albert, which was established 22nd September, 1871, under Mgr. V. J. Grandin, who resides at St. Albert, 9 miles to the north-west of Edmonton.

### REMARK.

In Part II, the forts and localities described are chiefly those respecting which reliable information has been procured in regard to their geographical situation, climate and resources.

For further information respecting the Roman Catholic Missions, etc., in the North-West, see "*Vingt Années de Missions dans le Nord-Ouest de l'Amérique*," by His Grace Alex. Taché, Archbishop of St. Boniface,— new edition, 1888, which has been consulted respecting various missions herein mentioned or described.



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IMPERIAL STATUTES  
RELATING TO  
LABRADOR  
SINCE THE BRITISH CONQUEST OF CANADA,  
1760.

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## IMPERIAL STATUTES

RELATING TO

# LABRADOR

SINCE THE BRITISH CONQUEST OF CANADA, IN 1760.

Definitive Treaty of Peace signed at Paris, 10th February, 1763, by which the whole of Canada or New France, with the exception of the Islands of St. Pierre and Miquelon, was ceded by the French to Great Britain.

By Royal Proclamation, 7th October, 1763, all the coast of Labrador, from the river St. John to Hudson's Strait, with the Island of Anticosti, Madeleine, and all the other small islands lying on the said coast, were placed under the care and inspection of the Governor of Newfoundland.

By the Act commonly known as the Quebec Act, 14 George III, Cap. 83, Section 1, 1774, all such territories, islands and countries, as had since the 7th October, 1763, been made part of the Government of Newfoundland, were annexed to, and made part and parcel of the Province of Quebec.

By an Act passed in the 49th year of the reign of George III, Cap. 27, A.D. 1809, Section 14, it is enacted that the coast of Labrador, from the River St. John to Hudson's Strait, with the Island of Anticosti and all other small islands annexed to the Government of Newfoundland by the proclamation of 7th October, 1763 (except the Islands of Madeleine), shall be separated from Lower Canada, and be re-annexed to Newfoundland.

By an Act passed in the 5th year of the reign of George IV, Cap. 67, Section 18 (1824), the Government of Newfoundland is empowered to institute a Court of Civil Jurisdiction, at any such parts or places on the coast of Labrador, as have been re-annexed to Newfoundland.

By an Act passed in the 6th year of the reign of George IV, Cap. 59, Section 9 (1825), it is enacted that so much of the coast of Labrador as lies westward of a line to be drawn due north and south from the Bay or Harbour of Anse Sablon, inclusive, as far as the 52nd degree of north latitude, with the Island of Anticosti and all other islands adjacent to the said coast, shall be re-annexed to Lower Canada.

"Royal Letters Patent," 28th March, 1876, define Newfoundland's jurisdiction in Labrador as follows:—

"The coast of Labrador, from the entrance of Hudson's Strait to a line to be drawn due north and south from Anse Sablon, on the said coast, to the 52nd degree of north latitude, and all the islands adjacent to that part of the said coast of Labrador."

(See Journal of the House of Assembly, Newfoundland, 1877.)

(Signed) J. JOHNSTON.

12th July, 1889.

NOTE.—See Memorandum 10th June, 1889, with Map, by John Johnston, Geographer of the Department of the Interior, appended to O. C. 27th November, 1889.—G.F.B.

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## CANADIAN PACIFIC RAILWAY OCEAN ROUTE.

PANAMA CANAL.

INTEROCEANIC PROJECTS.

SUEZ CANAL.

RAILWAYS TO HUDSON'S BAY,

FROM WINNIPEG, LAKE NIPISSING AND LAKE ST. JOHN.

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## CANADIAN PACIFIC RAILWAY OCEAN ROUTE.

VOYAGE OF THE "ABYSSINIA" ACROSS THE PACIFIC.—THE COMPANY'S PIONEER STEAMSHIP.—YOKOHAMA TO VANCOUVER. 1888.

The steamship "Abyssinia," the first of the Canadian Pacific Railway Company's trans-pacific line, left Yokohama, Japan, on Tuesday, the 31st of May, at 7 a.m., with a cargo of 1,200 tons of tea, as well as other merchandise, and a number of passengers. She arrived at Vancouver dock at 5.30 a.m. Tuesday, 14th June, having passed Victoria at 3.10 a.m., without stopping there, and anchored in English Bay at 9.25 p.m. the previous day.

The first 8 days out, the weather was thick, at times foggy, and the winds were high and variable, which prevented sails being used, and it was not until the last days of the voyage, on entering the Straits of San Juan de Fuca, that sail was set. Nothing of importance occurred during the trip, and no accidents of any kind marred the pleasure of those on board the "Abyssinia," which was commanded by Captain Marshall. She made her course over what is known as the "Great Circle," and found it to be 10 miles shorter than the distance set down on the Canadian Pacific Railway map. Passengers from Liverpool to Yokohama, by the Canadian Pacific Railway from Quebec to Vancouver, avoid the hot weather that is experienced on the Suez Canal route from Liverpool to Yokohama *via* the Straits of Malacca, which is 1,372 miles longer, the total distance on the former route being about 9,671 and on the latter 11,043 miles. The distance from Hong Kong to Vancouver is 5,758 miles, and from Yokohama to Vancouver, on the Great Circle, 4,334 miles. The voyage from Yokohama to Vancouver was made in 13 days and 14 hours. The longest run made in 24 hours was 324 miles, and the shortest 279 miles. A portion of the cargo of tea by the "Abyssinia" was consigned to Everett, Fraser, & Co., New York, to whom it was sent through by express on the same day that she arrived at Vancouver, making the fastest time on record from Yokohama to the Atlantic coast.

## NEW STEAMSHIPS.

The Canadian Pacific Railway in October, 1890, has announced the sailing of the following new twin-screw steel Steamships, from Liverpool to Japan and China: "Empress of India," "Empress of China," "Empress of Japan," in 1891.

The first will leave on or about the 15th January; the second, on or about the 15th February, and the third towards the 15th March.

The ports of call during the voyage from Liverpool to Vancouver, will be Gibraltar, Naples, Port Said, Suez, Colombo, Penang, Singapore, Hong-Kong, Shanghai, Nagasaki, Kobe and Yokohama; short stays being made at each. The fare has been placed at \$600 for the trip, which will include cost of meals and berths throughout on sea and rail; also transportation across the Atlantic, but will not include expenses ashore, or on lines of railway, other than the Canadian Pacific, nor while stopping over at Canadian Pacific Mountain Hotels. The voyage will last about 80 days.

These Steamships have been built for the Company, by the "Naval Construction and Armaments Company," at Barrow-in-Furness, England, where the first, "Empress of India" was successfully launched, 15th August, 1890. Their dimensions are: Length over all, 485 feet; between perpendiculars, 440 feet; breadth, moulded, 51 feet; depth, moulded, 36 feet; tonnage, 5,700 tons gross. Ships to be armed with 47 inch guns, and to be lighted throughout by electricity. Speed to be 18 knots on the measured mile, and 16½ knots on a 400 miles sea trial per hour, as per contract, 2nd July, 1889.

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## PANAMA CANAL.

Panama Canal, from Colon or Aspinwall, on the Atlantic, to Panama, on the Pacific, 73 kilomètres = 45·4 S. M. = 39·4 G. M. in length, with an excellent harbour at each end, and a railway in operation along the canal.

The total estimated quantity of excavation, for a through cut without locks, on this canal, is 46,150,000 cubic metres = 60,364,200 cubic yards, English measure.

## A CHANGE OF PLANS.

*The Panama Canal to have Locks, instead of being a Tide-water Route, for the present, so as to render it available to Navigation, as soon as possible.*

It is stated that the plans of M. de Lesseps, regarding the Panama Canal, have been changed, and that the marine highway will be built with locks instead of a tide-water canal, as was first intended, although the original plan of making it a tide-water route, M. de Lesseps says, is to be carried out eventually.

Henry B. Slaven, president of the Contracting and Dredging Company which has been actively engaged in the work of digging the canal since the start, arrived at New York from Europe on the 28th November, 1887.

In an interview, the latter said :—"The canal is more than half done. It is open at present for vessels drawing 15 feet of water for 20 kilomètres = 12·43 statute miles out of the total length of 73 K. = 45·4 S.M. That section of 20 K. or 12·43 S.M., is on the Atlantic end of the canal, and we dredged it ourselves. We will have 24 K. or 14·9 S.M. done by 1st July, and a French company, on the Pacific end, will have 5 more K. or 3·1 S.M. completed. Beyond our work, there is a 20 kilomètre section that a French company has contracted to do, but it has done very little on it. If the French contractors do as they ought to do, that section will give the shareholders no concern. There is left, however, a section, 25 K. = 15·53 S.M. long, that contains the ridge or backbone of the Isthmus. The elevations run from 50 to 287 feet above the mean level of the two oceans. A good deal of work has been done on this section, but it is here of course that the greatest amount of digging has to be done. (According to the original project examined by the International Congress in 1879, the maximum depth of cutting for a tide-water canal is 87 metres = 285·4 English feet above water surface for a distance of 1 K = 0·62 S.M. If a tunnel of 6 K. = 3·728 S.M. is constructed, the depth of cutting can be reduced to 34 metres = 111·5 feet. If locks are constructed, 13 will be required, and the depth of cutting will be still further reduced.) M. Eiffel, who is probably best known in America as the builder of the tower 1,000 feet high in Paris for the Exhibition of 1889, has the contract for the locks. The locks will be made chiefly of iron, and will be water-lifts.

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NOTE.—Owing to financial difficulties which have arisen since the above statement was made by H. B. Slaven, the works, which were then in progress on this canal, appear to have been discontinued.

PRINCIPAL PROJECTS  
OF  
INTEROCEANIC CANALS  
ACROSS THE  
CENTRAL AMERICAN ISTHMUS  
EXAMINED BY THE  
INTERNATIONAL CONGRESS OF 1879.

1.—ISTHMUS OF TÉHUANTÉPEC ROUTE, MEXICO.

Length, 240 kilomètres, or 149·13 English statute miles.

Number of locks, 120.

Time of transit, 12 days.

Canal practicable only with locks.

2.—LAKE NICARAGUA AND COSTA-RICA ROUTE.

Length, 292 kilomètres, or 181·44 statute miles, English.

Number of locks, 17.

Time of transit, 4½ days.

Canal practicable only with locks.

3.—ISTHMUS OF PANAMA ROUTE, COLUMBIA, WITH A SINGLE REACH.

*No Locks nor Tunnels—Adopted by International Congress.*

Length, 73 kilomètres, or 45·35 English statute miles.

Time of transit, 2 days.

Maximum height of cutting above water :—87 metres = 285·4 English feet, for a distance of 1 kilomètre nearly, or 0·62 English statute mile.

The same project may be executed and the depth of cutting may be diminished by slightly modifying the route and by constructing a tunnel of 6 kilomètres = 3·728 statute miles in length, and 84 mètres = 111·5 English feet in height, above mean sea level.

At Panama, a canal may also be constructed with locks. This route would require 13 locks. The Panama route therefore presents facilities for diverse modes of construction and advantages greater than on any of the other routes.

4.—SAN BLAS ISTHMUS ROUTE, COLUMBIA.

Length, 53 kilomètres, or 32·93 English statute miles.

Length of tunnel, 16 kilomètres, or 9·94 English statute miles.

Time of transit, 1 day.

5.—ATRATO-NAPIPI ROUTE, COLUMBIA.

Length, 290 kilomètres, or 180·2 English statute miles.

Number of locks, 2.

Length of tunnel, 4 kilomètres, or 2·49 English statute miles.

Time of transit, 3 days.

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## NOTA.

## SUEZ CANAL.

The Suez Canal is 166 kilomètres = 103·15 statute miles in length. The excavation for its construction, amounted to 75 millions of cubic mètres, equal to 98,100,000 cubic yards, English.

No port for landing, no railway and no water fit for drinking, were available when the work was begun.

## PANAMA CANAL.

On the Panama proposed canal, if constructed with a single reach, without locks and without tunnels, the estimated quantity of excavation is 46,150,000 cubic mètres, or 60,364,200 cubic yards, English.

There is a good port frequently resorted to, at each terminus, a railway along the entire route, and an abundance of potable water.

## NICARAGUA CANAL.

On the Nicaragua proposed canal, with locks, the estimated quantity of excavation is 53,793,000 cubic mètres, or 70,361,244 cubic yards, English.

There is no port available at either of its termini, the port of Greytown, on the Atlantic, being now entirely obstructed by sand deposits from the river San Juan. There is no railway, but potable water is abundant.

## FRENCH AND ENGLISH MEASURES.

1 mètre, French measure	= 3·28 English feet.
1 cubic mètre, French measure	= 1·308 cubic yards, English measure.
1 kilomètre, French measure	= 0·62138 statute miles, English measure.
1 statute mile, English	= 0·86755 geographical miles, English.
1 geographical mile, English	= 1·152664 statute mile, English.

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## SUEZ CANAL.

England still continues to reap the chief marine benefits accruing from the existence of the Suez Canal, in which, as the result of a bold stroke of policy on the part of the late Lord Beaconsfield, she is a large and controlling shareholder. Of the 395,840 shares of the company, 176,602 were purchased from the Khedive of Egypt by the British Government. The canal is about 100 miles long, connecting the Mediterranean and the Red Sea, thus affording a very much shorter route to the East than the old round-about route by way of Cape Horn.

By the completion of the Canadian Pacific Railway, the British military authorities have now an alternative route by which troops could be expeditiously forwarded to India, without being under the necessity of passing through foreign territory. The Suez Canal, in case of war, might be blockaded or so obstructed, by the sinking of vessels, as to interfere with navigation. In such a contingency, Canada's great highway, from ocean to ocean, would prove invaluable, and the day may yet come when its importance from a military stand-point, may be more seriously regarded than it appears to be, at present.

From a summary of the annual report of the Suez Canal Company, for 1887, it appears that the number of vessels which passed through the canal that year, was 3,137, their gross tonnage being 8,430,643 tons. Of the 3,137 vessels which passed through the canal that year, 2,330 were British, leaving 807 carrying other flags. Of this number, 183 carried the flag of France, 159 Germany, 138 Italian, 123 Holland, 82 Austria and Hungary, 28 Austria, 26 Spain, 22 Russia. Only three American vessels passed through the canal during the year. The number of persons that passed through, as passengers, was 173,788, of whom 91,996 were soldiers, 53,415 civil passengers, and 19,610 Mohammedan pilgrims. (*See Montreal Gazette*, April, 1888.)

## RAILWAYS TO HUDSON'S BAY.

### SUBSIDIZED RAILWAY—Winnipeg to or near Port Nelson, Hudson's Bay :—

Total length.....	650 miles.
Total land subsidy.....	6,880,000 acres.

See Act 49 Vic., Chap. 73, 1886, also O. C. 11th May, 1885.

Railway to be completed on or before 11th May, 1890.

### PROPOSED RAILWAY—LAKE NIPISSING TO HUDSON'S BAY.

1st Section—North Bay, near eastern extremity of Lake Nipissing, 20 miles west of Callendar Station, C. P. R., to Lake Temiskaming.....	81 miles.
2nd Section—Lake Temiskaming to Lake Abitibi	94 “
3rd Section—Lake Abitibi to Moose Factory, Hudson's Bay.....	175 “
Total length, about.....	350 “

A Company for the construction of this railway was incorporated in 1884 by Act 47 Vict., Chap. 80.

This Act was amended by Act 49 Vict., Chap. 77, 1886, granting an extension of time.

Work to be commenced.....	2nd June, 1888
1st Section to be completed.....	1890
2nd do do .....	1892
3rd do do .....	1894

### LAKE ST. JOHN TO HUDSON'S BAY.

Lake St John is about the same distance of 350 miles from the Hudson's Bay establishment near the mouth of the River Rupert, on the east side and near the southern end of James' Bay, as Lake Temiskaming is from Moose Factory on the west side of the same bay, at its southern end.

A straight line from Lake St. John to Hudson's Bay would pass at about 60 miles to the south of Great Lake Mistassini, which discharges into the River Rupert, which is equal to, if not greater than the River Saguenay.

NOTE.—For details respecting the above Lakes see :—

Abitibi .....	Page. 146
Nipissing .....	164
St. John .....	171
Temiskaming .....	172

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EXPENDITURE ON PUBLIC WORKS,  
CANADA,  
PRIOR TO AND SINCE CONFEDERATION,  
1st JULY, 1867.

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**OTTAWA PARLIAMENT AND DEPARTMENTAL BUILDINGS.**  
**DETAILED STATEMENT of Expenditure for CONSTRUCTION and IMPROVEMENTS since**  
**the commencement of above Buildings (1859) to the 30th June, 1890.**

	Prior to Confederation.	Since Confederation.	Total.	Grand Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
<i>Parliament Building:—</i>	1,419,355 68	91,188 89	1,510,544 57	
Library (completion).....		304,858 51	304,858 51	
Main tower do .....		24,500 25	*24,500 25	
Fire and water service (half cost).....		36,206 55	36,206 55	
Exit from galleries.....		4,999 99	4,999 99	
Pump-house.....		2,672 87	2,672 87	
Copper roofing and skylights.....		6,811 38	6,811 38	
Telephonic service (half cost).....		2,054 11	2,054 11	
Ventilation.....		6,075 52	6,075 52	
Electric lighting.....		22,905 27	22,905 27	
Lean to roofs .....		7,778 87	7,778 87	
Renewals, &c.....		2,425 70	2,425 70	
Speaker's apartments .....		5,258 63	5,258 63	
Post Office alterations, House of Commons.....		1,361 00	1,361 00	
Totals.....	1,419,355 68	519,097 54		1,938,453 22
<i>Eastern Block:—</i>	641,036 37	17,470 07	658,506 44	
Alterations and additions.....		10,997 59	10,997 59	
Attics.....		10,516 60	10,516 60	
Fire and water service (quarter cost).....		18,104 85	18,104 85	
Telephonic service do .....		1,027 05	1,027 05	
Vault (completion of).....		12,878 02	12,878 02	
do (new).....		36,069 50	36,069 50	
Totals.....	641,036 37	107,003 68		748,040 06
<i>Western Block:—</i>	641,036 38	17,470 07	658,506 45	
Alterations and additions.....		11,381 22	11,381 22	
Elevator (new).....		1,275 00	1,275 00	
Extension of building .....		462,247 11	462,247 11	
Fire and water service (quarter cost).....		17,721 23	17,721 23	
Main tower (recovering).....		2,783 71	2,783 71	
Telephonic service (quarter cost).....		1,027 06	1,027 06	
Totals.....	641,036 38	513,905 40		1,154,941 78
<i>Langerin Block, Wellington Street:—</i>				
Drains, Wellington and Bank Streets.....		6,348 00	6,348 00	
Electric bells .....		3,555 06	3,555 06	
Elevators.....		38,180 00	38,180 00	
Heating apparatus.....		24,733 40	24,733 40	
Iron joists.....		15,241 54	15,241 54	
do roofing .....		63,500 00	63,500 00	
do staircases.....		7,350 00	7,350 00	
Masonry work, &c.....		386,430 00	386,430 00	
Site (purchase, interest, legal services, &c.).....		96,566 76	96,566 76	
Miscellaneous expenditure.....		76,813 61	76,813 61	
Totals.....		718,718 37		718,718 37
<i>Grounds (for details, see App. No. 28:—</i>				
Public Works Report, 1883-84, p. 451).....	22,565 50	375,965 01		398,530 51
<i>Supreme Court (formerly Workshops).....</i>		67,106 01		67,106 01
<i>Sheds, Drying House, &amp;c .....</i>		1,657 45	1,657 45	1,657 45
Grand Totals.....	2,723,993 93	2,303,453 46		5,027,447 39

\* Including \$752.63 for the tower bell, also \$2,737.88 for clock.

N.B.—Above expenditure is charged as follows, viz. :—

Against "Capital" .....	\$4,822,455 32
do "Income" .....	204,992 07

Total as above.....\$5,027,447 39

DEPARTMENT OF PUBLIC WORKS,  
 OTTAWA, 22nd October, 1890.

(Signed,) O. DIONNE,  
 Accountant.

STATEMENT of Expenditure on Construction and Improvement of the Public Works of Canada, from their commencement to 30th June, 1889.

# BUILDINGS. IMPROVEMENTS since June, 1890.

	cts.	Grand Total.
644 57		
538 51		
600 25		
206 55		
999 99		
72 87		
11 38		
54 11		
75 52		
05 27		
78 87		
25 70		
58 63		
61 00		
.....		1,938,453 22
06 44		
07 50		
16 60		
14 85		
27 05		
78 02		
99 50		
.....		748,040 66
06 45		
81 22		
75 00		
17 11		
11 23		
3 71		
06 06		
.....		1,154,941 78
00 00		
00 00		
40 00		
54 00		
00 00		
00 00		
76 61		
.....		718,718 37
.....		398,530 51
.....		67,106 01
45		1,057 45
.....		5,027,447 29

ONNE,  
Accountant.

## STATEMENT of Expenditure on Construction and Improvement of the Public Works of Canada, from their commencement to 30th June, 1889.

Name of Work.	Government Expenditure.			Other than Government Expenditure.			Grand Total Expenditure to 30th June, 1889.
	Prior to Confederation.	Since Confederation.	Total Government Expenditure.	Prior to Confederation.	Since Confederation.	Total Expenditure other than Government Expenditure.	
	\$	cts.	\$	cts.	\$	cts.	\$
Railways.....	34,146,260 66		103,229,997 56		137,376,258 22		137,376,258 22
Canals.....	18,797,913 90		34,065,966 83		52,863,880 73		59,663,049 50
Totals, Railways and Canals.....	52,944,174 56		137,295,964 39		190,240,138 95		197,039,307 72
Public Buildings.....	4,188,460 89		14,483,069 56		18,663,530 45		18,712,329 64
Harbours and Breakwaters.....	2,515,566 78		8,909,679 13		11,425,275 91		11,693,421 16
Improvement of Rivers.....	36,404 85		1,889,641 87		1,926,046 70		1,936,460 08
Dredges.....	135,472 43		535,779 74		671,252 17		671,252 17
Slides and Booms.....	1,346,632 67		495,317 70		1,841,970 37		1,843,570 37
Roads and Bridges.....	491,554 52		1,334,635 83		1,816,190 35		1,829,690 35
Telegraph Lines.....	1,685,990 84		708,372 63		2,394,362 47		2,402,735 10
Lighthouses.....	305,784 40		1,425,914 81		1,731,698 21		1,731,698 21
Dominion Steamers.....	15,405 92		433,249 00		448,654 92		448,654 92
Monuments.....	12,511 58		15,405 92		27,917 50		27,917 50
Ottawa, Major's Hill Park.....	.....		12,511 58		12,511 58		12,511 58
do Cartier Square.....	.....		2,597 25		2,597 25		2,597 25
Totals, Public Works.....	10,690,917 36		30,246,175 15		40,937,092 51		41,435,006 33
Grand Totals.....	63,635,091 92		167,542,139 54		231,177,231 46		238,474,314 65

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APPENDIX No. 23.

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HEADS, DEPUTY - HEADS

AND

CHIEF OFFICERS

OF THE

DEPARTMENT OF PUBLIC WORKS,

1841 TO 1891.

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## APPENDIX

Members, Commissioners and Assistant Commissioners of the Board of Works,  
Architects of the Department of

Chairman, Commissioners and Ministers.			Assistant Commissioners and Deputy Ministers.	
Names.	From.	To.	Names.	Date of Appointment.
<i>Under Statute 4-5 Vic., Cap. 38, Cor- poration of Board of Works.</i>				
Hon. H. H. Killaly, Chairman.....				
" D. Daly.....	Dec. 29, 1841	Oct. 3, 1844		
" S. B. Harrison.....				
" J. Davidson, Esq.....				
<i>New Board of Works.</i>				
Hon. H. H. Killaly, Chairman.....	Oct. 5, 1844	June 8, 1846		
" D. Daly.....				
" W. H. Draper.....				
" W. Morris.....				
" D. B. Papineau.....				
<i>Under Statute 9 Vic., Cap. 37, etc.</i>				
Hon. W. B. Robinson, Chief Commis- sioner.	July 4, 1846	Mar. 10, 1848	Hon. Chas. Eus. Cas- grain, Second Com- missioner.....	Aug. 1, 1846
" E. P. Taché do ..	Mar. 11, 1848	Nov. 26, 1849	Hon. M. Cameron, Asst. Commissioner	Mar. 11, 1848
" J. Chabot do ..	Dec. 15, 1849	Mar. 31, 1850	Jno. Wetenhall, Asst. Commissioner.....	Feb. 2, 1850
" W. H. Merritt do ..	April 20, 1850	Feb. 11, 1851	Hon. Jos. Bourret, Asst. Commissioner	April 20, 1850
" J. Bourret do ..	Feb. 15, 1851	Oct. 27, 1851	Hon. H. H. Killaly, Asst. Commissioner	Feb. 15, 1851
" John Young do ..	Oct. 28, 1851	Sept. 22, 1852		
" J. Chabot do ..	Sept. 23, 1852	Jan. 26, 1855		
" F. Lemieux do ..	Jan. 27, 1855	Nov. 25, 1857		
" C. Alleyne do ..	Nov. 28, 1857	Aug. 1, 1858		
" L. H. Holton do ..	Aug. 2, 1858	do 6, 1858		
" L. V. Sicotte do ..	do 6, 1858	Jan. 10, 1859	Samuel Keefer, Dep. Commissioner.....	May 6, 1859
" John Rose do ..	Jan. 15, 1859	June 12, 1861		
" Jos. Cauchon, Commissioner..	June 15, 1861	May 23, 1862		
" U. J. Tessier do ..	May 24, 1862	do 27, 1863		
" L. T. Drummond do ..	do 28, 1863	July 23, 1863		
" M. Laframboise do ..	July 23, 1863	Mar. 29, 1864	Toussaint Trudeau, Dep. Commissioner	Mar. 15, 1864
" J. C. Chapais do ..	Mar. 30, 1864	June 30, 1867		
<i>Under Statute 31 Vic., Cap. 12.</i>				
Hon. Wm. McDougall, Minister....	July 1, 1867	Oct. —, 1869	Toussaint Trudeau, Deputy Minister..	July 1, 1868
Hon. H. L. Langevin, C. B. do ....	Dec. 8, 1869	Nov. 5, 1873		
Hon. Alexander Mackenzie do ....	Nov. 7, 1873	Oct. 16, 1878		
Sir Charles Tupper, C. B., K. C. M. G., Minister.....	Oct. 17, 1878	May 20, 1879		
Sir Hector L. Langevin, C. B., K. C. M. G., Minister.....	May 20, 1879		G. F. Baillairgé, Deputy Minister..	Oct. 4, 1879

No. 23.

and of the  
Public Works

Thomas A. B.

Thomas A.  
under  
Public W

Toussaint T

Frederick

{S. Chap  
F. H. E  
A. Gobe

## APPENDIX

## No. 23.

Board of Works,  
Department of

and of the Ministers, Deputy Ministers, Secretaries, Chief Engineers and Chief  
Public Works, from 1841 to 1891.

Commissioners  
and  
Ministers.

Date  
of  
Appointment.

Aug. 1, 1846  
Mar. 11, 1848  
Feb. 2, 1850  
April 30, 1850  
Feb. 13, 1851

May 6, 1859

Mar. 15, 1864

July 1, 1868

Oct. 4, 1879

Secretaries.		Chief Engineers.		Chief Architects.	
Names.	Date of Appointment.	Names.	Date of Appointment.	Names.	Date of Appointment.
Thomas A. Begly....	Aug. 17, 1841	Samuel Keefer....	Aug. 17, 1841	F. P. Rubidge, Architect and Asst. Chief En- gineer... ..	Dec. 15, 1841
Thomas A. Begly, under Act estab- lishing Dept. of Public Works....	Sept. 25, 1847				
		John Page.....	Oct. 31, 1853		
		Toussaint Trudeau...	Dec. 13, 1859		
		Frederick Brattin....	Mar. 8, 1864		
		G. F. Baillairgé, Asst. Chief En- gineer .....	July 5, 1871	Thos. S. Scott....	Feb. 7, 1872
(S. Chapleau.....	Oct. 4, 1879	H. F. Perley.....	Nov. 25, 1880	Thos. Fuller ...	Oct. 31, 1881
F. H. Ennis.....	Nov. 4, 1880				
A. Gobeil.....	Jan. 23, 1885				

## WESTERN ARCTIC OCEAN.

## TIDES.

		Inches.
1789—July 12th to 16th.	Sir Alexander Mackenzie, having ventured in a canoe in pursuit of whales, beyond Whale Island to which he was driven back by a storm, observed the tide at the mouth of the Mackenzie to be.....	18
1825—July and Aug.	Sir John (Dr.) Richardson and Mr. Kendall, during their journey eastward from the Mackenzie to the mouth of the Copper-Mine River, found the tides, at first, to rise.....	15
	Further east the tides decreased to.....	7 or 8
	On the 28th of July, the tide, in the morning, was.....	7
	do do evening, was.....	11
	The highest tides, they state, do not exceed.....	18
1837—Aug.	Thomas Simpson reached Point Barrow, Alaska, from the east, 23rd August, and started on his return eastward next day; he observed the tides to be semi-diurnal, and coming from the west, the highest being.....	15
	From Point Barrow, eastward, the tides decreased from.....	8 to 9
	The time of high water, eastward of Point Barrow, was from 1 to 2 o'clock, a.m. and p.m.	

## CURRENTS AND TIDES.

The tides are very rapid, according to the narratives of various Arctic Explorers.

1857-59.

In Bellot's Straits, Capt. McClintock had to contend with tides like a mill stream, running at the rate of 7 miles an hour.

There is a strong current to the north of Behring Sea; it sets eastward from Behring Sea to the Copper-Mine River, a distance, say, of 2,000 miles. The current from the west, in the Gulf of Boothia, has been found as great as 4 miles an hour.

## ICE BARRIER (PERMANENT).

*According to Sir John "Richardson's Polar Regions."*

To the westward of "Banks' Land," at some distance seaward of the American Continent, is found the permanent ice-blockaded sea, called by the Eskimos "the land of the white bear." This gigantic floe, we believe to be formed by the continued eastern set of the deep tidal and oceanic currents of the Polar Sea, east of Spitzbergen, and that it is prevented from permanently blocking up the coast line of the Continent only by the influence of the rapid tides which enter the Polar Sea through Behring Strait.

1850-55.

Sir Robert McClure and Capt. Collinson, in their voyages from Behring's Strait to Banks' Land, obtained information respecting the fixed "Barrier of Ice," as being distant from 30 to 50 miles from the Continent. It is supposed that this Ice Belt hangs on to a northern chain of islands.

Sir John Franklin had nearly completed the North-West Passage, when his two ships, the "Erebus" and "Terror," were beset in the ice, 12th September, 1846, and abandoned 28th April, 1848, near the Ice Barrier between King William's Island and Dease Strait. The crews landed on the Island, 22nd April, 1847; Franklin died 11th June, 1847. (See page 90, for further details.)

Omission.  
Page 182.

"1494?"—  
"1494?"—  
Page 197.

"1540."  
Page 198.

"1669-17"  
Page 200.

1819 to 1847  
Pages 203.

1825 to 1847  
Page 204.

1881.  
Page 205.

# GENERAL REMARKS, ETC.,

RESPECTING

## DATES, ETC., PART IV.

### ONTARIO BOUNDARY.

Omission.  
Page 182.

Westerly, northerly and easterly boundaries, by Canada Act, (Ontario Boundary), passed by Imperial Parliament, 52-53 Vic., cap. 28, 12th August, 1859, should have been stated at page 182, but will be found at pages 189, 190.

### VOYAGES OF DISCOVERY IN THE NORTH.

"1494?"—  
"1497."  
Page 197.

These are the dates given by Scoresby for the two first voyages of discovery by Jean Cabot and his son Sébastien.

The first voyage appears to have been made in "1497," and the second in "1498" or still later. Sulte states that Jean Cabot received a reward of only ten pounds for his discovery in 1497.

"1540."  
Page 198.

Scoresby gives this as being the date of Jacques Cartier's third voyage to Canada, and states that he remained there two years, after which Roberval joined him by appointment, and established a colony near Quebec.

According to the most reliable historical records, Cartier arrived at the mouth of the River Ste. Croix on the "23rd of August, 1541," wintered at Cap-Rouge, some miles above Quebec, and sailed early during the spring of the following year for France; Roberval, who had been appointed Lieutenant-General, etc., of New France, arrived at Cap-Rouge in "July, 1542," and returned to France in 1544.

"1669-1772."  
Page 202.

The first of these two years is evidently a misprint for Hearne's journey to the Copper-Mine River in "1769-1772."

1819 to 1822.  
Pages 203, 204.

Franklin, during his first Expedition, reached York Factory, Hudson's Bay, "30th of August, 1819," and remained there until the "9th of September"; he then began his overland journey to the Copper-Mine River and the Arctic Ocean, whence he returned to York Factory, 14th of July, 1822, and thence to England.

1825 to 1827.  
Page 204.

Franklin, during his second Expedition, spent the winter of 1825-26 at Fort Franklin, which is at the lower or "*west*" end and not at the "*east*" end of Great Bear Lake, as misprinted.

1881.  
Page 204.

DeLong's Expedition.—Out of the "21" who died, "10" must have perished at sea before they could reach the mainland with the boat in which they had embarked.

## ERRATA—PART IV.

Page 151.—Mgr. Vital Grandin resides at St. Albert, about "9," and not "12" miles north-west of Edmonton, according to Rev. A. Lacombe, G. Vic.

Page 153.—Bell discovered the Lower Yukon, on Canadian Territory.

Page 228.—The St. Lawrence was full of ice, at Montreal on the 5th of January, "1866," not "1886"; the year given in the margin is the correct one.

Page 237.—"Arthabasca" has been printed instead of "Athabasca."

Page 238.—East Main River Fort, on the eastern shore of Hudson's Bay, is situated at the mouth of "this river."

Page 238.—Saguenay "Reserve" Region should have been printed Saguenay "River" Region.

Page 244.—The "Abyssinia" passed Victoria, at 3.10 p.m., 13th June, 1888, and not at 3.10 a.m., before she arrived at Vancouver, B.C.

A  
FROM

ABITIBI, L.  
ABORIGINAL  
ACADIA AN  
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ALEXANDER  
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ATHABA  
ATHABATO

# ALPHABETICAL INDEX.

## CANADA

FROM THE ATLANTIC TO THE PACIFIC AND ARCTIC OCEANS.  
ARCTIC VOYAGES AND VOYAGES OF DISCOVERY, ETC.

### A.

	PAGE.
ABITIBI, LAKE—Area, dimensions, depth and elevation above the sea. Population, etc. ....	28, 146
ABORIGINAL or Indian population of Canada .....	14 to 20
ACADIA AND NEW FRANCE, &c.—Progressive population, 1605 to 1881. ....	10, 11
ACADIA, N. S.—Acadians settled at Belle-Ile-en-Mer, France, 1765. ....	75
Earliest attempt at colonization .....	70 to 72
Expulsion and transportation of Acadians .....	72 to 75
ACADIAN Population, 1749 to 1771, compared with that of 1871. ....	11
AGRICULTURAL STATISTICS, 1605 to 1888. ....	114 to 131
Alaska, U. S., Fort Yukon, northern limit of production. ....	127
Canada, 1534 to 1765 .....	114, 116
Canada's trade and consumption of wheat. ....	125
Canada and other countries—northern limit of production. ....	127 to 130
Census of New France, 1667-1765. ....	115
Cultivation of cereals throughout the world. ....	131
Dominion of Canada, 1871 and 1881, compared. ....	122 to 124
Province of Quebec, 1784 to 1861 .....	116
do Nova Scotia, 1671 to 1701 ; 1827 to 1861 .....	117, 118
do New Brunswick, 1840 to 1861. ....	119
do Ontario, 1826 to 1861 .....	120
do Manitoba, 1831 to 1856 .....	121
do British Columbia .....	121
do Prince Edward Island, 1861 to 1871. ....	121
Wheat, barley, oats, corn, buckwheat and rye, in various countries—average, 1881 to 1887. ....	125
Wheat and potatoes in Canada—yield per acre, 1851 to 1888, about every ten years. ....	124
Wheat-producing Countries of the world and average yield per acre. ....	124, 125
Wheat crop of the world in 1888. ....	126
Wheat crops in the principal countries of the world each month of the year. ....	131
AINSLIE, LAKE, CAPE BRETON, N. S.—Area, dimensions, depth and elevation above the sea. ....	28
ALBANY, FORT.—West side of James' Bay (Hudson's Bay). ....	66
ALEXANDER, FORT.—Outlet of River Winnipeg .....	66
ANGLICAN MISSIONS AND DIOCESES.—Labrador to British Columbia. ....	15 to 19
do do Northern Territories, H. B. Forts .....	146 to 175
ANTICOSTI, ISLAND.—Anse aux Fraises, St. Alfred and St. Ludger. ....	238
ARCTIC OCEAN.—Western tides, current, ice-barrier, etc. ....	258
AREA.—Dominion of Canada and Newfoundland. ....	6
AREA AND POPULATION.—British possessions. ....	7
do United States of North America .....	7
do The World. ....	7
ATHABASCA DISTRICT.—Freight rates from Calgary to Edmonton .....	179
ATHABASCA LAKE.—Area, dimensions, depth and elevation above the sea. ....	28
ATHABASCA LAKE TO GREAT SLAVE LAKE.—Animals, minerals, petroleum, trees, navigation. ....	146-147
ATHABASCA LANDING.—Navigation, steamers, &c. ....	146-147
ATLANTIC—Napipi Canal Route, Columbia—Indian. ....	246



## E.

PAGE.		PAGE.
28	EDMONTON.—Situation, climate, products, coal, gold, etc., Indian population, churches, &c...	152, 153
218	ERIE LAKE.—Area, dimensions, depth and elevation above the sea, &c...	26, 27, 28
194	ERRATA	260
193	ESQUIMALT.—Vancouver Island, B. C.—Tides—Lat. Long.	218
193	ESQUIMAUX.—Population of Arctic Archipelago, Greenland, Hudson's Strait, Labrador and Polar Sea	15, 19
182	Kayaks (canoes)	17
193	Settlements at Boothia Felix, Etah, Igloodik, Ka-pa-rok-to-lik, and at Moravian missions, &c., Labrador coast, &c	16, 19
189, 184	ETAH.—The northernmost habitation of man on the west coast of Greenland	18
185	EXPEDITION.—Sir Alexander Mackenzie's to the Arctic Ocean, 1789, and to Pacific Ocean, 1793	84, 203
192	Sir John Franklin's to the Copper-Mine River and the Polar Sea, 1819-20-21-22	86, 87, 91, 95, 203
189, 190, 191, 242	Sir John Franklin's to the mouth of the River Mackenzie and the Polar Sea, 1825-26-27	88, 89, 92, 96, 204
191	Sir John Franklin's to the Polar Sea <i>via</i> Davis Strait and Baffin Sea, 1845-46-47	90, 204
185	Capt. George Nares' to the Polar Sea <i>via</i> Davis Strait, Baffin Sea and Smith's Sound, 1875-76	204
184, 185	Lieut. Com. G. W. DeLong's, U. S., to the Polar Sea <i>via</i> Behring Strait, 1881	204-205
189, 190, 191	Lieut. A. W. Greely's to the Polar Sea <i>via</i> Davis Strait, Baffin Sea and Smith's Sound, 1881-82-83-84	204, 205, 206
185	For the rescue of Franklin and Greely	205, 206
192, 193	Various parties, 340 before Christ to 1819	197, 203
180, 187, 188, 189	EXPENDITURE on construction and enlargement of canals	33
193	do on Parliament buildings and other public works, Canada, prior to and since Confederation	252, 253
183, 184	EXPORTATIONS from the Provinces of Canada	110

## F.

244	FEDERAL finances of Canada	111
36, 37	FISHERIES	107
32	FORTS.—Hudson's Bay and North-West Territory:—	
28	Albany	66
148, 149	Alexander	66
197 to 205	Caminiistigouia (Kaministiquia)	66
series,	Chipewyan (Chipiowan)	148
150, 151	Churchill	66, 150
103	Confidence	151
218	Cumberland (Cumberland House)	66, 151
86, 87, 91	Dunvegan	151
96	Edmonton	152
206	Enterprise	86, 87, 91
177	Fond du Lac	153
100, 101	Frances, River Laplaie, Rainy River	66
93	Francis Lake, Pelly River	153
94	Franklin	153
106, 107	Garry	66
151	George, and other Forts, Hudson's Bay Territory	238
155, 156	Good Hope, New or Upper	154
151	Halket	157
	Hannah or Hannah Bay House	238
	Hudson's Bay and North-West Companies, first established	136
	Liard (Fort aux Liards)	159
	McLeod, North and McLeod, South	160
	McMurray Landing	161
	McPherson	161, 162
	Moose Factory	66, 162, 163
	Nelson, York Factory	163
	Norman, New	164, 165
	Norway House	66, 165
	Providence, New	167, 168
	Rae	168
	Reliance (on the Yukon River)	168
	Resolution	169
	Rupert House	66
	Selkirk	66
	Severn	66
	Simpson	169, 170
	Smith	170
	Smoke River or Fort Boucane	171
	St. Albert and other Forts in Alberta District	236
	St. Bernard, etc., in Athabasca-Mackenzie District	236, 237
	St. John, on Peace River	171

## F

	PAGE.
<b>FORTS—Continued.</b>	
Ste. Anne Lake, etc.	236
Vermilion	173
White Fish Lake (Fort or Post)	236
William on the River Kaministiquia	66
Wrigley	174
York Factory (Port Nelson)	175
Yukon	176
<b>FOUNDATIONS OF CITIES, &amp;c., in "La Nouvelle-France" and in British North America:—</b>	65
Belleville.	
Brantford.	
Burrard Inlet.	
Cataracoui (Kingston).	
Charlottetown, Prince Edward Island.	
Chibouctou (Halifax).	
Fort La Reine, Fort Garry, Winnipeg.	
Fort Richelieu (Sorel).	
Fort Rouillé (Toronto).	
Fredericton, New Brunswick.	
Guelph.	
Hamilton, Ontario.	
Hull, Ottawa County, P. Q.	
La Présentation (Ogdensburg).	
London, Ontario.	
Louisbourg, Cape Breton.	
New Orleans.	
New Westminster, British Columbia.	
Ottawa, Ontario.	
Pontchartrain (Detroit).	
Port Royal (north side of Annapolis Basin).	
Port Royal (south side of Annapolis Basin).	
Prescott.	
Quebec.	
Sherbrooke, P. Q.	
St. Catharines (Welland).	
St. John, New Brunswick.	
St. John, Newfoundland.	
Sydney, Cape Breton.	
Three Rivers.	
Toronto.	
Vancouver.	
Victoria, British Columbia.	
Ville-Marie—(Montreal).	
FRANCIS LAKE.—Fort.—Pelly River.	153
FRANKLIN'S—First Expedition to the Copper-Mine River and the Polar Sea, 1819-20-21-22.	86, 87, 91, 95, 203
Second Expedition to the Mackenzie River and the Polar Sea, 1825-26-27.	88, 89, 92, 203
Third Expedition to the Polar Sea <i>via</i> Davis Strait, Baffin Sea and Lancaster Sound, 1845-46-47.	90, 204
FRANKLIN—Fort.—Great Bear Lake.—Situation, climate, &c.	153, 154
FRASER RIVER—British Columbia—Tides.	218
FREIGHT RATES.—Calgary, proposed route by Edmonton, Lesser Slave Lake, Peace and Pelly Rivers, to Gold Mines in the Yukon District.	180
Edmonton wagon road to Athabasca Landing.	146
River Yukon to the Gold Mines, 1888.	180
FRENCH FORTS.—Lake Superior to Cumberland House, and on Hudson's Bay, prior to the cession of Hudson's Bay to Great Britain by the treaty of Utrecht, 11th April, 1763—and the English forts then existing, or subsequently built:—	66
Bourbon (Norway House).	
Bourbon (York Factory).	
Dauphin.	
Kaministiquia (William) Kaministiquia or Caministiquia.	
La Reine (Garry).	
Maurepas (Alexander).	
Niewasavane (Severn).	
Paskoyac (Cumberland House).	
Rouge.	
Ste. Anne (Albany).	
St. Charles.	
St. Charles (Rupert House).	
St. Louis or Monsoni (Moose Factory).	
St. Pierre (Frances).	
FRESH WATER AND Salt Water Ice.—Thickness observed at various Polar stations.	99
FRENCH AND ENGLISH MEASURES—Feet, Yards, Miles, Kilometres.	247

GARRY, FORT,  
GENERAL REM  
Gold product  
Good HOPE,  
population  
GRAND LAKE,  
GREAT BEAR  
GREAT BEAR

GREAT SLAVE  
do  
GREELY'S EX  
1881-82-83

HARBOUR OF  
HALKET, FOI  
opening  
HEADS, ETC.  
HIGHEST LA

Ald  
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Fra  
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Hay  
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## G

PAGE.

GARRY, FORT, at Winnipeg.....	PAGE. 66
GENERAL REMARKS, ETC., respecting dates, etc., of Part IV.....	250
GOLD production of Canada.....	109
GOOD HOPE, FORT.—New or Upper.—River Mackenzie.—Situation, climate, products, population, R. C. mission and convent.....	154-155
GRAND LAKE, New Brunswick.—Area, dimensions, depth and elevation above the sea.....	28
GREAT BEAR LAKE, and the Copper-Mine River.....	155
GREAT BEAR LAKE.—Area, dimensions, depth, elevation above the sea.....	155
Climate, game, fish, animals.....	155-156
GREAT SLAVE LAKE, N. W. T.—Area, dimensions, depth and elevation above the sea.....	28
do do Minerals, fish, navigation.....	156-157
GREELY'S EXPEDITION to the Polar sea <i>via</i> Davis Strait, Bathin Sea and Smith's Sound, 1881-82-83-84.....	204-205-206

## H.

HARBOURS open all winter.....	294
HALKETT, FORT, Liard River.—Climate, products, Indian and White population, R. C. mission, opening and closing of the river.....	157
HEADS, ETC., of the Department of Public Works, 1841 to 1891.....	250, 257
HIGHEST LATITUDES ATTAINED.—North.—Arctic Regions and Polar Sea.....	67
Aldrich, Lieut.	
Beaumont, Lieut. L. A.	
Cabot, Sebastien.	
DeLong, Lieut., Com. Geo. W.	
Franklin, Sir John.	
Greely, Lieut. Adolphus W.	
Hall, Capt. F.	
Hayes, Dr.	
Hudson, Henry.	
Inglefield, Admiral.	
Kane, Elisha Kent.	
Markham, Commander.	
Nares, Capt. George.	
Parr, Lieut.	
Parry, Admiral W.	
Payer, Lieut. Julius.	
Phipps, C. J.	
Ross, Capt. John.	
Scoresby, W., sen.	
HISTORICAL MAP OF CANADA.—Letter of Governor Schultz, of Manitoba, approving the same.	3
HUDSON'S BAY, STRAITS AND TERRITORIES.—Economic materials, fisheries animals, navigation.	157, 158
HUDSON'S BAY. Projected Railways from Winnipeg, Lake Nipissing and Lake St. John.....	249
HURON, LAKE.—Area, dimensions, depth, and elevation above the sea.....	26, 27, 28
HYETAL OR RAIN TABLE.—Dominion of Canada.....	97

## I.

ICE—Fresh and Salt water.—Thickness at various Polar stations.....	99
IGLOOLIK.—Esquimaux Village, Polar Sea.....	18
IMPERIAL STATUTES relating to Labrador.....	242
INDIAN POPULATION.—Resident and nomadic in Dominion of Canada.....	15 to 20
do In the United States of America.....	22 to 24
INTEROCEANIC CANALS. Projected or constructed.....	245 to 248

## K.

KILOMETRES and English Miles.....	247
KOOTENAY LAKE—British Columbia.—Area, dimensions, depth and elevation above the sea.....	28
KYUQUOT SOUND—West side of Vancouver Island, B.C.—Tides, Lat., Long.....	218

## L

LA BICHE, LAKE.—Situation, climate, products, population.....	159
LABRADOR BOUNDARIES. Imperial Statutes relating thereto.....	242
LAKE ST. JOHN, P. Q. Description and Projected Railway to Hudson's Bay.....	171-249
LAKES OF CANADA.—Area, dimensions, depth and elevation above the sea.....	27, 28
LATITUDES observed, 1820 to 1833, at various Polar stations west of Greenland.....	99
LATITUDE and longitude of Fort Yukon, Alaska.....	176
LATITUDES and longitudes, elevation above sea, temperature, rain and snowfall, and percentage of cloudy weather at various localities from Newfoundland to Hudson's Bay, Great Bear Lake, in the Mackenzie River region, and to the Pacific Ocean.....	100, 101
LATITUDES and longitudes of the "International Circumpolar Stations," established by the various nations of America and Europe in 1882-83.....	103
LATITUDES, longitudes, temperature, &c., observed by Franklin during his first expedition, 1819-20-21-22, to the Copper-Mine River and the Polar Sea <i>via</i> Hudson's Bay.....	86, 87



## N

	PAGE.		PAGE.
tion to and the		NAVIGABLE WATERS.—St. Lawrence Navigation.....	26, 27, 32
River	96	Lake Erie.	
.....	102	do Huron and Georgian Bay.	
.....	218	do Michigan and Green Bay.	
		do Ste. Claire.	
		do St. Francis.	
		do St. Louis.	
		do St. Peter.	
		do Superior.	
		River Detroit.	
		do Niagara.	
		do Ste. Claire.	
		do St. Lawrence.	
		do St. Mary.	
ations	94	NELSON, FORT, on east branch of Liard River.....	163
.....	159	do PORT.—Hudson's Bay.—Situation, climate, products, navigation.....	175
vation	28	NEW WESTMINSTER.—British Columbia.....	65, 237
.....	160	NICARAGUA AND COSTA RICA.—Projected Canal.....	246, 247
and the	59 to 61	NIPIGON LAKE, Province of Ontario.—Area, dimensions, depth and elevation above the sea...	28-163
.....	28	NIPISSING LAKE.—Area, dimensions, depth and elevation above the sea.....	28-164
		NIPISSING LAKE TO HUDSON'S BAY.—Projected Railway.....	249
		NOOTKA SOUND.—West side of Vancouver Island, Pacific Ocean.—Tides, lat., long.....	218
		NORMAN, FORT (New).—Situation, climate, products, mission, population.....	164, 165
down	136	NORTHERN LIGHT—of cereal production, &c.....	127 to 130
Slave	137	Alaska.	
.....	137 to 138	Austria.	
y and	142	Canada.	
rs and	134 to 140	Cumberland House.	
.....	138	Chipewyan, Fort.	
orman	139, 140	Denmark.	
.....	103	Dunvegan, Fort.	
.....	28	Dromtheim (Norway).	
.....	160	Edmonton, Fort.	
.....	160	Europe.	
.....	161	Germany.	
&c.,	27, 28	Good Hope, Fort.	
.....	109	Great Britain.	
e the	20	Halket, Fort.	
.....	28	Iceland.	
.....	162	Lapland.	
.....	220 to 231	Liard, Fort.	
.....	142	Norway.	
.....	162	Northern portion of Europe.	
.....	16 to 18	Poland.	
		Providence, Fort.	
		Qu'Appelle, Fort.	
		Russia—Central, Eastern, Northern, Western.	
		Scotland.	
		Sweden.	
		Simpson, Fort.	
		Yukon.	

## O.

		OPENING AND CLOSING OF NAVIGATION:—	
		Athabasca River.....	148
		Edmonton.....	152
		Great Slave Lake.....	156
		Hayes River.....	175
		Hudson's Bay and Strait.....	157, 158
		Liard River.....	139, 159
		Moose Factory.....	162
		River Churchill.....	150
		River Mackenzie—Fort McMurray.....	139, 161
		do Norman.....	140, 165
		do Simpson.....	139, 170
		Rivière aux Liards—Fort Halket.....	139, 157
		Various Ports in Canada.—Tides.—Opening and closing of Navigation, etc.....	212 to 234
		ONTARIO, LAKE.—Area, dimensions, depth and elevation above the sea, &c.....	26 to 28
		OTTAWA PARLIAMENT and Departmental Buildings.—Expenditure thereon.....	252 to 253
		OTTAWA RIVER, navigation, including St. Ann's Lock, Carillon, Grenville and Culbute Canals.....	32
		OXFORD HOUSE.—Situation, products, &c.....	165

## P

	PAGE.
PANAMA CANAL.....	245 to 247
PEACE RIVER AND REGION.—Situation, climate, products, animal, navigation, etc., 29, 127, 160, 166, 171	167
PEEL RIVER.—Navigation.....	180
PELLE RIVER.—Houle Rapids to Porcupine River.....	237, 238
POINTE AUX ESQUIMAUX—St. Pierre, etc., North shore of River St. Lawrence.....	11
POPULATION, Acadian, 1749 to 1771, compared with the same in 1871.....	7
do of British possessions in the world.....	7
do of the United States of North America.....	7
do of the World.....	6
POPULATION.—Dominion of Canada and Newfoundland :—.....	
Alberta, Assiniboia, Athabasca, North-West Territories and Saskatchewan.	
British Columbia.	
Islands in Arctic Ocean and Hudson's Bay.	
Keewatin and Territory east thereof, and south of Hudson's Bay.	
Labrador.	
Manitoba.	
Newfoundland.	
do French shore, Cape Ray to Cape St. John.	
New Brunswick.	
Nova Scotia.	
Ontario.	
Prince Edward Island.	
Quebec.	
Territory east of Hudson's Bay.	
POPULATION—Indians.—Dominion of Canada.....	14, 15
do Indians and Whites.—Mackenzie River Region.....	141
do Indians.—United States, North America.....	22 to 24
PORCUPINE RIVER to the Pelly River.....	180
PORT MOODY—Burrard Inlet, B.C.—Tides.....	218
PORT NELSON, Hudson's Bay or York Factory.—Situation, climate, products, navigation.....	175
PORTS open to navigation the whole year.....	234
PORT SIMPSON—British Columbia.—Tides, lat., long.....	218
PRINCE ALBERT.—Situation, climate, products, population.....	167
PRODUCTS AND TRADE, &c., of Canada.....	105 to 11
PROGRESSIVE POPULATION of New France, Acadia, &c., now the Dominion of Canada.....	19 to 11
PROVIDENCE, FORT, Great Slave Lake.—Situation, climate, products, population, R.C. mission.	167
PROVISIONAL DISTRICTS, Boundaries, etc., North-West Territories.....	192, 193
Q.	
QUATSINO—West coast of Vancouver Island, B.C.—Tides, lat., long.....	218
QU'APPELLE RIVER AND LAKES.—Assiniboia District.....	29
R.	
RAE, FORT—Great Slave Lake.—Situation, climate, Indian and White population. R.C. mission	168
RAILWAYS.—British possessions, 1888.....	38
Canada, 1889.....	36, 37, 39
Foreign countries, 1887-88.....	38
Owned by coal and iron mines, 1888.....	40
RAILWAYS TO HUDSON'S BAY.—Projected.....	249
RAIN AND SNOW TABLES.—Dominion of Canada.....	97, 98
At various places, Newfoundland to Great Bear Lake.....	100, 101
RED RIVER.—Width, depth, navigation.....	29 to 31
RELANCE, FORT.—On the Yukon River.....	168
RELIEF EXPEDITIONS for the rescue of Franklin, 1848 to 1850.....	205
do do Greely, 1882-83-84.....	206
RESOLUTION, FORT.—Situation, climate, products, Indian population, missions.....	169
RICHELIEU RIVER and Lake Champlain navigation.....	32
RIDEAU NAVIGATION, Ottawa to Kingston.....	32
RIVERS :—Athabasca.....	29, 134, 135
Assiniboine.....	29
Belly.....	160
Churchill.....	150
Copper-Mine—Franklin's Expedition.....	65, 155, 156
Forty-Mile—Yukon District.....	177
Fraser—Discovered by Mackenzie.....	65, 218
Great Bear.....	136
Great Slave.....	134, 135
Hayes.....	175
Hood—[ ]'s 1st Expedition.....	87
Liard.....	127, 129
Little or [ ] Slave.....	135
Mackenzie.....	127, 129, 130, 134, 136, 137, 138, 139, 140
Nelson.....	175
Paranip—Mackenzie's Expedition.....	84

## RIVERS :—Continued

Peace.....	
Peel.....	
Pelly.....	
Porcupine.....	
Qu'Appelle.....	
Rainy.....	
Red.....	
Saguenay.....	
Salmon.....	
Saskatchewan.....	
Slave.....	
Smoke.....	
Souris.....	
Yukon.....	
RIVIERE DU LIÈV.....	
ROMAN CATHOLIC.....	
Labrador.....	
Northern.....	
ROSSIGNOL LAKE.....	
ROUTES.—Liver.....	
do.....	
SALT WATER AND.....	
SAN BLAS ISLAND.....	
SASKATCHEWAN.....	
Edmonton.....	
SIMCOE LAKE.....	
SIMPSON, FORT.....	
SIMPSON, PORT.....	
SITKA OR ARK.....	
SLAVE LAKE.....	
the sea, to.....	
SLAVE LAKE.....	
SMITH, FORT.....	
SMOKE RIVER.....	
SNOW AND RAIN.....	
At various.....	
STAFF of the L.....	
STATUTE MILE.....	
STEAMSHIPS.....	
STE ANNE, L.....	
ST. FRANCIS.....	
sea, &c.....	
ST. JOHN, LA.....	
Climate.....	
ST. LAWRENCE.....	
ST. LOUIS, L.....	
ST. MAURICE.....	
ST. PETER, L.....	
ST. PETER'S.....	
SUBMARINE C.....	
do.....	
SUEZ CANAL.....	
SUNLIGHT.....	
do.....	
do.....	
do.....	
do.....	
SUPERIOR L.....	
TAY RIVER.....	
TEHUANTEPEC.....	
TELEGRAPH.....	
C.....	
O.....	
TELEGRAPH.....	
C.....	
O.....	
TEMISKAM.....	

## R

## RIVERS:—Continued.

## PAGE.

Peace.....	29, 127, 160, 166, 167, 171
Peel.....	140, 167
Pelly.....	180
Porcupine—Yukon District.....	127, 129
Qu'Appelle.....	29, 128, 129
Rainy.....	96
Red.....	29, 31
Saguenay.....	172
Salmon—Discovered by Mackenzie.....	65
Saskatchewan.....	29, 30, 31, 128, 129, 169
Slave.....	29, 134, 135
Smoke.....	171
Souris.....	29
Yukon.....	127, 176, 177
RIVIERE DU LIEVRE.—Lock and dam.....	32
ROMAN CATHOLIC MISSIONS AND DIOCESES:—	
Labrador to British Columbia.....	15 to 19
Northern Territories (Hudson's Bay, forts, &c.).....	146 to 175, 235 to 239
ROSSIGNOL LAKE, Nova Scotia.—Area, dimensions, depth and elevation above the sea.....	239
ROUTES.—Liverpool to Yokohama <i>via</i> Canada.....	59 to 60
do do Canada and United States compared.....	61

## S.

SALT WATER and Fresh Water Ice.—Thickness observed at various Polar stations.....	99
SAN BLAS ISTHMUS—Columbia.—Projected Canal.....	246
SASKATCHEWAN RIVER NAVIGATION.—Discharge of water, distances along the river to	
Edmonton, altitude and temperature of upper and lower portions of plain.....	30 to 31, 169
SIMCOE, LAKE, Ontario.—Area, dimensions, depth and elevation above the sea.....	28
SIMPSON, FORT, River Mackenzie.—Situation, climate, products, population and missions.....	169 to 170
SIMPSON, FORT—British Columbia.—Tides, Lat. Long.....	218
SITKA OR ARKHANGEL, U.S., Alaska Territory.—Tides, Lat., Long.....	218
SLAVE LAKE.—Great, North-West Territory.—Area, dimensions, depth and elevation above	
the sea, temperature, etc.....	28, 29, 167, 169
SLAVE LAKE.—Little or Lesser.—Area, dimensions, depth and elevation above the sea.....	28
SMITH, FORT.—Great Slave River.—Situation, salt deposits, Indians, Roman Catholic mission.	
SMOKE RIVER, FORT.—Situation, soil, Roman Catholic mission.....	170
SMOKE RIVER, FORT.—Situation, soil, Roman Catholic mission.....	171
SNOW AND RAIN TABLES.—Dominion of Canada.....	97, 98
At various places from Newfoundland to Great Bear Lake.....	100 to 101
STAFF of the Department of Public Works, 1841 to 1891.....	256, 257
STATUTE MILES.—Corresponding to a degree of longitude at every degree of latitude.....	210
STEAMSHIPS.—New—of the Canadian Pacific Railway Company.....	244
STE ANNE, LAKE.—West of Edmonton—Alberta.....	236
ST. FRANCIS, LAKE.—P. O. and P. Q.—Area, dimensions, depth and elevation above the	
sea, &c.....	26-27
ST. JOHN, LAKE, P.Q.—Area, dimensions, depth and elevation above the sea.....	28
Climate, soil and productions, and also principal villages.....	171-172, 238
ST. LAWRENCE NAVIGATION.—Lake Superior to Strait of Belle-Ile.....	26, 27
ST. LOUIS, LAKE, P.Q.—Area, dimensions, depth and elevation above the sea, &c.....	26-27
ST. MAURICE, Quebec and Saguenay regions.—Extent, &c.....	172, 238
ST. PETER, LAKE, P.Q.—Area, dimensions and elevation above the sea.....	26-27
ST. PETER'S CANAL, between the Atlantic and Bras-d'Or Lake, Cape Breton, N.S.....	32
SUBMARINE CABLES.—Canadian Government.....	42, 43, 49
do The World.....	44 to 58
SUEZ CANAL.....	247, 248
SUNLIGHT.—Mackenzie River region compared with Ottawa.....	102
do Chipewyan—Fort, Lake Athabasca.....	
do Good Hope—Fort, River Mackenzie.....	
do McPherson—Fort, Peel River.....	
do Ottawa City, River Ottawa.....	
SUPERIOR LAKE.—Area, dimensions, depth and elevation above the sea.....	26 to 28

## T.

TAY RIVER CANAL.....	32
TEHUANTEPEC CANAL ROUTE.—Projected.....	246
TELEGRAPH CABLES:—	
Canadian Government.....	42
Of the World.....	3
TELEGRAPH LINES ON LAND:—	
Canadian Government.....	49
Of the World.....	58
TEMISKAMING, LAKE, P.Q.—Area, dimensions, depth and elevation above the sea.....	28
do Climate, trees, animals, economic materials, R. C. mission.....	112, 173

## V.

PAGE.

VANCOUVER ISLAND, British Columbia, Pacific Ocean.....	237
VARIATION of compass and dip of needle observed by Franklin during his first Expedition to the mouth of the Copper-Mine River and on the Polar Sea, 1819-20-21-22.....	95
VERMILION, FORT—On Peace River.—Situation, elevation above the sea, climate, products, missions.....	173, 174
VESSELS AND TONNAGE.—Arrived and departed from Canadian ports.....	34
do do At the principal countries of the World.....	34
VICTORIA CITY, Vancouver Island, British Columbia.....	65, 237
"VINGT ANNÉES de Missions dans le Nord-Ouest de l'Amérique," by His Grace Alex. Taché, Archbishop of St. Boniface, Manitoba.....	239
VOYAGE of the "Abyssinia" C.P.R. steamship across the Pacific.....	244
VOYAGES of the new steamships:—Empress of India, Empress of China and Empress of Japan, announced by the Canadian Pacific Railway Company.....	244
VOYAGES OF DISCOVERY undertaken by the different nations of the World in search of a northern communication between the Atlantic and Pacific Oceans, &c.....	197 to 206

## W.

WESTERN ARCTIC OCEAN, tides, current, ice-barrier, etc.....	258
WINNIPEG.—Capital of the Province of Manitoba.....	238, 239
WINNIPEG, LAKE—Province of Manitoba.—Area, dimensions, depth and elevation above the sea.....	28, 29, 30, 31
Steamers navigating the lake.....	30, 31
WINNIPEG TO LIVERPOOL—Hudson's Bay Route—Compared with Quebec and St. John, N.B., routes.....	143
WINNIPEG TO PORT NELSON, Hudson's Bay.—Projected Railway.....	249
WINNIPEGOSIS LAKE.—Province of Manitoba.—Area, dimensions, depth and elevation above the sea.....	28
WINTER PORTS.—On the Atlantic and Pacific Oceans.....	234
WOODS, LAKE OF THE—Province of Ontario.—Area, dimensions, depth and elevation above the sea.....	28
WRIGLEY, FORT.—On the Mackenzie River.—Situation, climate, fruit.....	174

## Y.

YAMASKA RIVER.—Lock and dam.....	32
YORK FACTORY (Port Nelson), Hudson's Bay.—Situation, climate, products, navigation... ..	175
YUKON DISTRICT.—Animals, birds, fish, minerals, metals, plants, snow and ice.....	177, 178
Proposed route to gold mines.....	180
Cost of provisions.....	180
YUKON and Athabasca Districts.—Freight rates.....	179
do FORT.—Situation.....	176, 177
do RIVER and tributaries, and navigation.....	176, 177
do TERRITORY.—Distances from Fort McPherson, west of the Mackenzie, up to Fort Chipewyan, Lake Athabasca.....	180
do Distances from Haines Mission, Chilkoot Inlet, to Boundary line between Canada and Alaska.....	179